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AUTHOR	Storey, Keith
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ABSTRACT

This final report briefly describes activities of a project which developed and evaluated specific natural support intervention procedures to increase the social integration of employees with severe disabilities using single-subject, clique analysis, and social validation methodologies. The project resulted in the publication of 6 journal articles and 12 presentations at local, state, and national conference. Included are the full texts of the six articles, which are: (1) "The Use of Self-Management Strategies for Increasing the Appropriate Hygiene of Persons with Disabilities in Supported Employment Settings" (Jennifer Traviss Garff and Keith Storey); (2) "Natural Supports for Increasing Integration in the Workplace for People with Disabilities: A Review of the Literature and Guidelines for Implementation" (Keith Storey and Nicholas J. Certo); (3) "Quality of Life Issues in Social Skills Assessment of Persons with Disabilities" (Keith Storey); (4) "The Cumulative Effect of Natural Support Strategies and Social Skills Instruction on the Integration of a Worker in Supported Employment" (Keith Storey and Jennifer T. Garff); (5) "The Effects of Co-Worker Instruction on the Integration of Youth in Transition in Competitive Employment" (Keith Storey and Jennifer T. Garff); and (6) "The Effect of Co-Worker Versus Job Coach Instruction on Integration in Supported Employment Settings" (Mellanie Lee, Keith Storey, Jacki L. Anderson, Lori Goetz, and Steve Zivolich). (Individual papers contain references.) (DB)

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FINAL REPORT

THE USE OF NATURAL SUPPORTS TO INCREASE INTEGRATION IN SUPPORTED EMPLOYMENT SETTINGS FOR YOUTH IN TRANSITION

(#H023A50104-95)

1. ABSTRACT

Purpose

The purpose of this project is to investigate a number of important knowledge gaps by researching and disseminating specific natural support strategies for increasing social integration between employees with and without severe disabilities in supported employment settings.

Problems to be Addressed and Need for this Effort

The high unemployment rate and lack of social integration of youth in transition and adults with severe disabilities is a serious issue facing society. Supported employment has been developed as a method of delivering appropriate employment services to people with severe disabilities who have traditionally been denied access to integrated work settings. Supported employment provides persons with severe disabilities paid work in integrated settings that is accompanied by technical and social support to the employer and employee. While integration is frequently acknowledged as a value upon which services are to be based, methods of increasing social integration at the workplace are neither well designed nor well developed.

Project Goals and Products

The proposed project will develop and evaluate specific natural support intervention procedures for increasing the social integration of employees with severe disabilities using established single-subject, clique analysis, and social validation methodologies.

Expected Outcomes and Potential Significance

Using established single-subject methodology, the major outcome is the development of specific natural support intervention strategies for increasing the integration of youth in supported employment. These strategies will increase the integration of the youth with disabilities and will have the potential impact of being disseminated and used by other supported employment programs across the nation. Two research studies and three conference presentations will be developed from this project.

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2. PROJECT OBJECTIVES

1.0 Project Implementation Tasks
    1.1 Hire staff.
    1.2 Learn data collection systems.
    1.3 Analyze data.
    1.4 Dissemination.
    1.5 Monitor intervention implementation.
    1.6 Monitor fiscal, personnel, management.

2.0 Conduct Research on Natural Supports and Integration
    2.1 Conduct Research Study 1.
    2.2 Conduct Research Study 2.

3.0 Manage the Project
    3.1 Plan and update project timelines.
    3.2 Establish and maintain project staffing.
    3.3 Ensure inclusion of traditionally underrepresented groups.
    3.4 Coordinate project activities with other agencies and consultants.
    3.5 Disseminate project results.
    3.6 Report to project funders.

3. ACCOMPLISHMENTS

The major accomplishments which are completed are listed and delineated below. There were no problems, deviations from the planned schedule of tasks, or any technical changes in the project. All project implementation tasks were completed. All management tasks were completed in a timely manner.

1. Six journal articles were completed as a result of this project. This is beyond the two articles originally outlined in the proposal.

2. Twelve presentations were made at local, state, and national conferences as a result of this project. This is beyond the three conference presentations originally outlined in the proposal.

JOURNAL ARTICLES

Storey, K., & Certo, N. J. (1996). Natural supports for increasing integration in the workplace for people with disabilities: A review of the literature and guidelines for implementation. Rehabilitation Counseling Bulletin, 40(1), 62-76.

Garff, J. T., & Storey, K. (in press). The use of self-management strategies for increasing the hygiene of persons with disabilities in supported employment settings. Education and Training in Mental Retardation and Developmental Disabilities.

Storey, K. (in press). Quality of life issues in social skills assessment of persons with disabilities. Education and Training in Mental Retardation and Developmental Disabilities.

Storey, K., & Garff, J. T. (1997). The cumulative effect of natural support strategies and social skills instruction on the integration of a worker in supported employment. Manuscript submitted for publication.

Storey, K., & Garff, J. T. (1997). The effect of co-worker instruction on the integration of youth in transition in competitive employment. Manuscript submitted for publication.

Lee, M., Storey, K., Anderson, J., Goetz, L., & Zivolich, S. (1997). The effect of co-worker versus job coach instruction on integration in supported employment settings. Manuscript submitted for publication.

PRESENTATIONS

Storey, K., & Garff, J. (1996, November). The use of natural supports to increase integration in supported employment. The Association for Persons with Severe Handicaps 22nd Annual Conference. New Orleans, LA.

Storey, K. (1996, July). Integration, communication issues, and natural supports. Inservice training for Community Employment Services staff. San Francisco, CA.

Storey, K., & Garff, J. (1996, July). Integration and natural supports. Inservice training for Spectrum Center staff. Rodeo, CA.

Storey, K., & Garff, J. T. (1996, July). The use of natural supports to increase integration in employment settings for youth in transition. The Association for Persons in Supported Employment 7th Annual Conference. New Orleans, LA.

Test, D. W., Wood, W., Storey, K., Urbain, C., DiLeo, D., & Rogan, P. (1996, July). Helping to define the future of natural supports in supported employment. The Association for Persons in Supported Employment 7th Annual Conference. New Orleans, LA.

Storey, K., & Garff, J. T. (1996, May). The use of natural supports to increase integration in employment settings. In K. Storey (Chair), Current issues in supported employment. The Association for Behavior Analysis 22nd Annual Conference. San Francisco, CA.

Storey, K. (1996, April). Transition from school to adulthood. Support for Families of Children with Disabilities Parent/Professional Workshop. San Francisco, CA.

Storey, K., & Garff, J. (1996, March). Natural supports. Inservice training for ARC San Francisco Group Placement Job Coaches. San Francisco, CA.

Storey, K., & Garff, J. (1996, February). Natural supports. The Supported Employment Collaboration Meeting. San Francisco, CA.

Storey, K., Certo, N., & Smalley, K. (1995, December). Natural supports in the workplace: Research findings and guidelines for making it happen. The Association for Persons with Severe Handicaps 21st Annual Conference. San Francisco, CA.

Certo, N., Storey, K., Pumpian, I., Fisher, D., & Smalley, K. (1995, December). Focusing on the point of transition. The Association for Persons with Severe Handicaps 21st Annual Conference. San Francisco, CA.

Storey, K., & Garff, J. (1995, December). Natural supports. Inservice training for ARC San Francisco Job Coaches. San Francisco, CA.

Natural Supports for Increasing Integration in the Workplace for People With Disabilities: A Review of the Literature and Guidelines for Implementation

Keith Storey

Nicholas J. Certo

Natural supports for workers with disabilities involves using coworkers, supervisors, and other supports intrinsic to the job setting to facilitate job skill acquisition, maintenance, and integration. The purpose of this article is to review the empirical literature (case studies and empirical research) related to natural supports in the workplace for increasing integration and offer guidelines for implementation. Conclusions are offered regarding the limitations of current research, the needs for future research, and the changing roles of supported employment services.

One of the most important reasons for employing persons with disabilities is social integration (Wehman & Moon, 1987). Mank and Buckley (1989) outlined four indices of integration in the workplace (physical, social, relationships, and social networks), and Storey (1993) discussed both macro and micro measures of these four indices of integration as well as guidelines for more comprehensive assessment of integration.

Social integration can lead to better social support for the person with disabilities (Kennedy, Horner, & Newton, 1989). Social integration and social support are essential because (a) they are valued by our society (Haring, 1991); (b) they help individuals through stress and difficulties (House, 1981); (c) they help link people who are devalued to the community (O'Brien, 1987); and (d) they meet needs of persons with disabilities that professionals cannot meet (Beckett & Fluke, 1988). However, methods

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Keith Storey is an assistant professor in the Department of Education at Chapman University in Concord, California. Nicholas J. Certo is a professor in the Department of Special Education at San Francisco State University. *The completion of this article was supported in part by a grant from the U.S. Department of Education. However, the opinions expressed herein do not necessarily reflect the position or policy of the U.S. Department of Education, and no official endorsement should be inferred. We would like to thank Teresa Grossi for her comments on an earlier draft of the manuscript.* *Correspondence regarding this article should be sent to Keith Storey, Chapman University, 2600 Stanwell Drive, #110, Concord, CA 94520 (e-mail: storey@nexus.chapman.edu).*

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of enhancing social integration in the workplace have not been well investigated and are not understood clearly (Storey, Ezell, & Lengyel, 1995; Storey & Lengyel, 1992). Research indicates that although persons in supported employment may be physically integrated, they are often socially segregated (Storey & Horner, 1991a).

One method that has been promoted for increasing social integration in the workplace is the use of *natural supports*. The purpose of this article is to review the empirical literature related to increasing integration through the use of natural supports in the workplace and to offer guidelines for implementation. For this review, the literature is organized and reviewed according to three broad components: (a) description of natural supports, (b) review of the research concerning natural supports and integration, and (c) discussion of issues regarding implementation of natural supports.

WHAT ARE NATURAL SUPPORTS?

Since the introduction of the concept of natural supports, most notably by Nisbet and Hagner (1988), a growing set of data has emerged focusing on the ability of natural supports to provide assistance and social relationships in work and community settings for individuals with disabilities. Many definitions of natural supports are found in the literature (c.f. Goetz, Certo, Doering, & Lee, 1996). Based on a synthesis of this information and on our own experience with this concept, the following working definition of natural supports is provided: Natural supports are people who are not disability service providers but who provide assistance, feedback, contact, or companionship to enable people with disabilities to participate independently, or partially independently, in integrated employment settings or other community settings. Typically, individuals providing natural supports receive assistance and consultative support from disability service providers and provide natural supports with or without compensation, depending on the situation.

As described in this definition, natural supports are people who function in a particular relationship with an individual with a disability. We emphasize that the use of natural supports is based on the understanding that using people who are typically found on the job and in typical work environments enhances integration more effectively than does relying on specialized services, personnel, and settings (Butterworth, Hagner, Kiernan, & Schalock, in press; Griffin, 1994; Marrone, Balzell, & Gold, in press; Murphy & Rogan, 1994; Nisbet, 1992). This relationship is an outcome that is facilitated by strategies implemented, typically, by staff from external human service support agencies or from school systems. Most often, individuals who function as natural supports are endemic to a job, a community environment, or a community activity, independent of the presence of an individual with a disability. People who function as natural supports

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may be coworkers, managers, college teachers, or advisors at fitness centers. In addition, these individuals may provide their support based on, or in addition to, their job responsibilities. An example of the former would be a manager who trains all new employees. An example of the latter would be an employee who assists a coworker with a disability to remember the merchandise restocking tasks that need to be completed during his or her shift.

Natural supports can occur at the work site but be related to ancillary activities. Mobility within a building, participating in office parties, or eating lunch with coworkers are examples. In addition, they can be related to activities that involve coworkers off-site. Participation in an employee softball league or a holiday party at a local hotel would fall into this category. Natural supports may be the same as support provided to all individuals in a setting, or they may be provided on a voluntary basis and tailored specifically to an individual's needs.

Natural supports also refer to friends, acquaintances, classmates, or relatives who choose to access the same community setting with an individual with a disability, such as attending a baseball game together. Natural supports may be provided on a continual basis or on an intermittent basis. For example, monitoring work performance throughout an entire shift would be continuous, whereas driving an individual with a disability to work would be intermittent. However, regardless of their genesis, the term *natural supports* has been used in the literature to distinguish between supports that are (a) inherent to the job and (b) provided by an agency or a system, such as a public school or a rehabilitation or developmental disability vendor, both of which are external to a job or community setting and unique to individuals with disabilities.

Natural Supports in the Workplace

In the workplace, natural supports involve work-site personnel and others providing support to employees with disabilities, with a special emphasis on enhancing social integration (Callahan, 1992; Hanley-Maxwell & Millington, 1992; Hughes, Rusch, & Curl, 1990; Nisbet & Hagner, 1988; Rogan, Hagner, & Murphy, 1993). Supports may involve (a) continued skill training, (b) social skills instruction, (c) advocacy, (d) community skill training, (e) crisis intervention, (f) validation of instructional strategies, (g) collection of subjective evaluations, (h) collection of social comparison information, and (i) job modifications and adaptations (Hagner, Butterworth, & Keith, 1995; Hanley-Maxwell & Millington, 1992; Rhodes, Sandow, Mank, Buckley, & Albin, 1991; Rusch & Minch, 1988; Shafer, 1986). Supports such as job matching, providing information concerning disabilities, and understanding support and funding agency guidelines are offered

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to the employer and coworkers, as well as to the employee with a disability (Flexer et al., 1994).

Wehman (1995) discussed the data from a national survey in which 74% of the respondents indicated that the use of natural supports is increasing, 7% of the respondents indicated that it is staying the same, 0% indicated that it is decreasing, and 19% did not know. Furthermore, Wehman (1995) discussed the finding that natural supports are the predominant source of extended services in 37% of supported employment placements.

Natural supports have a favorable cost-benefit ratio in the one study examining this aspect. Zivolich, Shueman, and Weiner (1996) evaluated the cost-benefit analysis of natural support strategies for 59 employees with severe disabilities over a 6-month period. Zivolich et al. found that the benefit was a return on money invested for taxpayers, participants, and society in general when using natural support strategies.

Connection Between Natural Supports in the Workplace and Social Supports in the General Community

In general, social supports may include a variety of types of assistance such as instructional assistance, counseling, emotional aid, and friendship, and the assistance may be either formal or informal (Nisbet, 1992; Nisbet, Clark, & Covert, 1991). Although definitions of social support networks often focus on the links among individuals (Felton & Shinn, 1992), social supports are often extraindividual and are not necessarily restricted to an individual (Felton & Berry, 1992). Social supports beyond the individual level with implications for integration often include community as locality, relational communities, and community as collective political power (Heller, 1989).

In addition, social supports for people with disabilities may involve assistance such as finding a place to live, shopping, recreating in the community, being involved in political activities, and other aspects of community life. There seems to be a logical connection between natural supports in the workplace and in the community. If a person with a disability is integrated into a job with good pay, then the assumption is that they are more likely (but not guaranteed) to have friends outside of the workplace. These friendships may lead to developing supports in the community as well as the economic capability of taking part in integrated community activities. In other words, people with a good job are more likely to have a financial situation that allows them to take part in integrated community activities. This is not to say that natural supports on the job site and in the community will necessarily involve the same components or that generalizations can be made across settings. It will be necessary to analyze both the successful elements and their settings, as well as

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how the successful elements can be replicated or adapted in other settings or for other people.

Why Are Natural Supports Important in the Workplace?

Why has the shift toward natural supports in philosophy and service delivery occurred? It has been suggested, though not empirically validated, that the presence of job coaches and other human service professionals inhibits interactions between the worker with a disability and others (Nisbet & Hagner, 1988). It is has been suggested that coworkers, supervisors, and others will be more likely to interact with the job coach rather than the worker with a disability in situations such as job instruction and social interaction. Thus, the presence of the job coach might impede friendships and social networks that might occur at and outside of the job site between the employee with a disability and coworkers without disabilities. The shift in service delivery toward natural supports has the philosophical underpinnings that people with disabilities should be provided supports in ways that are as close to "normal" as possible and that services should be provided with an emphasis on increasing and enriching the relationships between people with and without disabilities.

Research has found that coworkers are able to provide instruction similar to instruction that a job coach might provide such as verbal instructions, modeling, physical prompts, feedback, and praise (Likins, Salzberg, Stowitschek, Lignugaris/Kraft, & Curl, 1989). Likins et al. provided the most detailed and comprehensive report of coworker training to date. However, their study focused on accuracy and work rate rather than on integration.

Tables 1, 2 and 3 summarize the guidelines that have been suggested by various researchers for implementing natural support strategies. Table 1 summarizes indirect facilitation guidelines. In indirect facilitation, the person with a disability directly accesses supports that are available to all

TABLE 1

Indirect Facilitation Guidelines for Implementing Natural Support Strategies

Guideline	Reference
Use wellness programs already in place at job sites.	Hanley-Maxwell & Millington, 1992
Use existing employee assistance programs.	Hanley-Maxwell & Millington, 1992
Use existing basic skills training programs.	Hanley-Maxwell & Millington, 1992
Use existing mentoring programs.	Hanley-Maxwell & Millington, 1992
Use apprenticeships.	Hanley-Maxwell & Millington, 1992

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TABLE 2

Direct Facilitation Guidelines for Implementing Natural Support Strategies That Teach Skills Directly to the Person With a Disability

Guideline	Reference
Attendant is hired by worker with disability.	Nisbet & Hagner, 1988
Training program should emphasize behavioral rehearsal and discussions and modeling with verbal descriptions.	Shafer, 1986
Employee preferences and attributes are matched to workplace climates.	Roger et al., 1993
Consumers are helped to develop social interaction skills appropriate to the setting.	Hagner et al., 1995

employees. Table 2 reviews direct facilitation guidelines. In direct facilitation, skills are taught directly to the person with a disability to eliminate or reduce direct supports by external agency staff and to enhance natural supports. Table 3 summarizes indirect natural support guidelines. In indirect natural support, coworkers and other people without disabilities are provided with advice and taught skills to eliminate or reduce direct supports by external agency staff and to enhance natural supports. Unfortunately, only a few of these strategies have been empirically validated regarding increasing integration in the workplace.

RESEARCH

We have provided an exhaustive review of the literature related to natural supports and integration in the workplace for employees with disabilities. The studies included were located by reviewing journals that publish research involving persons with disabilities, reviewing the references of articles and book chapters on natural supports and integration, and conducting an ERIC search on natural supports. To be included in our study, the research had to involve natural support strategies in supported employment settings for people with disabilities with integration as a dependent variable being evaluated.

Although there have been some case studies in the literature (Certo et al., 1996; Fabian, Edelman, & Leedy, 1993; Rogan et al., 1993), there have been few controlled empirical studies concerning natural supports in the workplace. The following is a brief analysis of the case studies and empirical studies that have evaluated the effect of natural supports on integration in the workplace for workers with disabilities.

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TABLE 3

Indirect Natural Support Strategies That Directly Teach Skills and Provide Advice to Coworkers and Others

Guideline	Reference
Use mentor after initial job development, analysis, and training.	Nisbet & Hagner, 1988
Use job sharing options.	Nisbet & Hagner, 1988
Use specifically trained mentors for initial training.	Lee et al., 1996
Anticipate personnel changes.	Woolcock, 1995
Establish an ongoing dialog and regular meetings between all persons involved.	Woolcock, 1995
Model appropriate social responses.	Certo et al., 1996
Be present during social functions (e.g., holiday party) to capitalize on potential interactions.	Certo et al., 1996
Redirect questions or comments to the individual with the disability.	Certo et al., 1996
Reassure managers and coworkers that they can ask personal questions.	Certo et al., 1996
Build trust between external support agency and work-site personnel.	Certo et al., 1996
Refine new and existing social networks continually.	Certo et al., 1996
Use personal contacts to enhance social support.	Rogan et al., 1993
Collaborate between external support agency and work-site managers or coworkers to develop adaptations and modifications.	Rogan et al., 1993
Facilitate and support involvement of work-site personnel.	Rogan et al., 1993
Provide consultation on redesigning or organizing the work environment to benefit all employees.	Rogan et al., 1993

Case Studies

Using qualitative research methodologies (participant observation and interviews), Hagner (1989) evaluated the social integration of seven employees with disabilities. It was found that job coaching interfered with mentoring for the supported employees and that the job coaches did not teach participation in social customs. As a result, the supported employees received less natural support than did their coworkers without disabilities.

Udvari-Solner (1990) used the recorded perceptions of the job coaches to assess the integration of persons with intellectual disabilities in supported employment settings. The results indicated that there was a significant relationship between the level of integration experienced by the worker with a disability and the percentage of supervision provided by the job coach.

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Fabian et al. (1993) used natural support strategies in the job placement of 23 persons with a variety of disability labels. Qualitative data found that 86% of the supported employees remained at the same job for at least 6 months after the direct intervention. The natural support strategies used were directed toward the employer and coworkers and included enhancing resources, improving employer skills and knowledge, and confronting negative attitudes at levels of the individual coworker or supervisor, the work group, and the entire organization.

Rogan et al. (1993) described five techniques for facilitating natural supports that were used successfully with four individuals with severe disabilities. Although all four of these individuals received some direct support from external employment agency staff, most of their support came internally from coworkers or managers. The natural support strategies used were as follows: (a) using personal contacts and other connections to enhance social support, (b) matching employee preferences and attributes to work-site social climates, (c) collaborating between external support agency staff and work-site managers or coworkers to develop adaptations and modifications, (d) facilitating and supporting involvement of work-site personnel, and (e) consulting with supported employment service providers to redesign or organize the work environment to benefit all employees. The authors reported that all four workers with disabilities were working successfully and had developed personal or social relationships with coworkers. They concluded that these strategies played a useful role in the employment and social successes experienced by these individuals.

Certo et al. (1996) described the techniques used to facilitate natural supports in a retail merchandising position at a department store, in a community college class, and in a private health spa for a 22-year-old woman with severe disabilities. This case study used the process of person-centered-planning (Hobbs & Allen, 1989; Mount & Zwernik, 1988) to establish goals for the woman and her family regarding work and leisure. The authors concluded that facilitating natural supports involved the use of common techniques such as modeling, "hanging out" during social functions, redirecting questions and comments to the woman with a disability, building trust, reassuring people (coworkers especially) that they could ask personal questions, encouraging a multitude of formal and informal interactions, and continually fine-tuning new and existing social networks. Exchanges between employment support agency staff and coworkers and others were minimized and relegated to an advisory role.

Empirical Studies

In an early study on natural supports, Rusch, Weithers, Menchetti, and Schutz (1980) reduced the topic repetition of a student with moderate

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mental retardation working in a university cafeteria. Three coworkers who ate meals with this student were instructed to tell him each time he repeated a statement that had already been made. The results indicated that the coworkers were minimally effective in reducing the student's repeated statements. When the coworkers were cued by the experimenters to provide feedback when they failed to do so independently, then the student's repeated statements decreased. Unfortunately, the study did not evaluate whether the positive effect of the intervention resulted in a more positive acceptance of the worker with a disability.

Murphy (1992) used a simultaneous treatment design, combined with a quasi-reversal across two employment sites with four transition-age students with severe disabilities, to determine if there was a difference between interventions provided by a job coach and those provided by a coworker. In addition, the study determined whether the use of a coworker would facilitate integration. The coworkers received a 30-minute in-service training on modeling, reinforcing appropriate behaviors, and methods of instruction and correction. In addition, after each experimental session, each coworker was given feedback about their instruction by the investigator. The results indicated that there was no significant difference between the on-task behavior of the workers with severe disabilities during the job coach and natural support intervention phases. However, social interactions between the employees with a disability and coworkers without disabilities did increase after coworkers were included in the training process. In addition, interactions between the job coach and the employees with disabilities decreased during the natural support phases in comparison to the job-coach phase.

Lee, Storey, Anderson, and Goetz (1996) evaluated the effect of using mentors versus job coaches for initial training on the social integration of workers with severe disabilities in supported employment settings. They found that the 10 employees with severe disabilities who were trained by mentors had more reciprocal interactions with coworkers without disabilities than 10 employees with severe disabilities who were trained using the traditional job-coach model. However, neither of these two groups had as many reciprocal interactions as the comparison group of coworkers without disabilities. The topic of the interactions did not vary among the three groups. These topics included job-related, social-related, and job-reinforcement categories.

DISCUSSION

What We Know

The eight research studies reviewed in this article implemented natural supports using a variety of intervention procedures. It is clear from the research studies that natural supports are not limited to any one approach

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What We Do Not Know

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to providing support on the job to people with disabilities. The studies reviewed also indicate that a variety of natural support strategies may be used separately or in conjunction with other approaches such as job-coach services, job matching, and self-management procedures.

Note that the studies discussed in this manuscript do not define *integration* consistently. Is integration (a) the reduction of topic repetition (Rusch et al., 1980), (b) tenure on the job (Fabian et al., 1993), or (c) developing personal or social relationships with coworkers (Rogan et al., 1993)? These definitions would loosely fit into the definition offered by Mank and Buckley (1989), though future research efforts need to be clear as to their definition of integration and to define their dependent variables operationally.

What We Do Not Know

We currently have a limited empirical basis for advocating the use of natural supports for increasing integration in supported employment settings as well as for natural supports in general (Test & Wood, in press). Currently there is no definition of natural supports that has achieved consensus, nor is it clear exactly what intervention variables comprise natural supports in the workplace.

Although issues such as the need for employment and integration of workers with disabilities are values driven, there are many issues that can have an empirical basis on which to base decisions and guide policy (Horner, 1991), and natural supports in the workplace is one. The ability of natural support strategies to increase integration in the workplace needs to be empirically validated and guidelines need to be developed for implementing natural support strategies. It will be important to research which natural support strategies work best under which conditions and settings and with whom (e.g., individuals with significant support needs such as no speech, multiple disabilities, challenging behaviors).

Implications

What are the outcomes of natural supports in the workplace? Regarding integration, it will be necessary to assess multiple measures of integration to get a more comprehensive understanding of this complex issue (Chadsey-Rusch, 1992; Storey, 1993). Because intervention packages are likely to be complex and involve a variety of natural support strategies, often in conjunction with job-coach supports, researchers need to be precise when implementing independent variables to clarify and to evaluate systematically the effects of multiple component intervention packages (Storey & Gaylord-Ross, 1987). Procedural reliability in this area will be of critical importance (Billingsley, White, & Munson, 1980).

Some appropriate measures of integration for natural supports research include the following: (a) frequency of interactions (Brinker, 1985), (b) type of interactions (Storey & Knutson, 1989), (c) conversational analysis

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(Nisbet, Zanella, & Miller, 1984), (d) duration of interaction (Bakeman & Adamson, 1984), (e) description of the social context (Dodge, 1983), (f) clique analysis (Yan et al., 1990), (g) normative comparisons (Storey & Horner, 1991b), (h) subjective social validation ratings (Storey & Horner, 1991b), (i) frequency of contact (Kennedy et al., 1989), (j) durability of contact patterns (Kennedy et al., 1989), (k) reciprocity of relationship (Mannarino, 1980), (l) sociometrics (Asher & Hymel, 1981), (m) size of social network (Kennedy, Horner, & Newton, 1990), (n) reciprocity in social network (Horner, Newton, & Stoner, 1988), and (o) the structure and function of the social networks (Heitzmann & Kaplan, 1988). Of course, researchers will not be able to use all of these measures in any one study, but the careful use of multiple measures of integration will greatly increase our understanding of how natural supports impact the integration of workers with disabilities. In addition, it will be important to assess these measures both inside and outside the workplace.

If natural supports are to be implemented on a large scale then it will be necessary to change drastically the way in which employment services are provided for people with disabilities (Mank, 1994; Smull & Danehey, 1994). For instance, it will be necessary to change job descriptions, roles, and training for service providers with an increased focus on performance measures and continuous quality improvement (Albin, 1992). With natural supports in particular, and supported employment in general, outcome measures are the most meaningful assessment, and process variables take on a lesser role than with more traditional vocational services for people with disabilities.

Another related change concerns the role of vocational rehabilitation counselors. The use of natural supports can affect how counselors monitor their performance in the workplace. For example, in monitoring the performance of job coaches, counselors will need to expand the concept of direct client-contact hours to allow more flexibility so that coaches are free to provide their support indirectly through consultation with coworkers and observation of clients on-site. Furthermore, individualized written rehabilitation programs need to incorporate natural supports as part of the criteria for successful placement and closure, including consideration of the role of natural supports in long-term rehabilitation goals, on-the-job assistance, and postemployment services.

Questions that need to be more fully addressed by future research are as follows:

1. How does the role for the job coach change with natural supports?
2. Is the job-coach role eliminated or does it become more of a consultant role?
3. Is it an all or nothing approach (Kregel, 1994; Parent, Unger, Gibson, & Clements, 1994)?

4. Does the job coach fa
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REFERENCES

Albin, J. (1992). *Quality improveme*
quality through change. Baltim

Asher, S. R., & Hymel, S. (1981). C
and behavioral assessment. I
126–157). New York: Guilfor

Bakeman, R., & Adamson, L. B.
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Beckett, C., & Fluke, D. (1988). Su
Parent, 18, 20–26.

Billingsley, F., White, O. R., & Mur
example. *Behavioral Assessme*

Brinker, R. P. (1985). Interactions
students in integrated and se
Deficiency, 89, 587–594.

Butterworth, J., Hagner, D., Kiern
in the workplace and commu
of the Association for Persons

Callahan, M. (1992). Job site trainin
in school, at work, and in the
Baltimore: Brookes.

Certo, N. J., Lee, M., Mautz, D.,
Natural supports case study: As
script. San Francisco: San Fra

Chadsey-Rusch, J. (1992). Toward
settings. *American Journal on*

Dodge, K. A. (1983). Behavioral a
1386–1399.

BEST COPY AVAILABLE

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4. Does the job coach facilitate natural supports within the job place, or is this an intrusion that will block integration? Is there still a place for systematic instruction by the job coach?

In conclusion, it seems that natural supports are a promising method of increasing integration of workers with disabilities in employment settings. However, natural support methods lack empirical validation regarding increasing integration in the workplace and reflect the lack of evidence on natural supports in general (Test & Wood, in press). The need to continue research in this area is clear. Callahan (1992) has noted that any instructional approach in supported employment must be effective for each individual and must be compatible with the setting in which it is to be used. It does not seem to us to be an either-or choice between natural supports and the traditional job-coach model. We believe that each worker with a disability first needs to be considered as an individual and then supports should be built around their needs, rather than arbitrarily deciding that a specific method is appropriate for achieving integration in the workplace.

REFERENCES

Albin, J. (1992). *Quality improvement in employment and other human services: Managing for quality through change.* Baltimore: Brookes.

Asher, S. R., & Hymel, S. (1981). Children's social competence in peer relations: Sociometric and behavioral assessment. In J. D. Wine & M. D. Smye (Eds.), *Social competence* (pp. 126–157). New York: Guilford.

Bakeman, R., & Adamson, L. B. (1984). Coordinating attention to people and objects in mother-infant and peer-infant interaction. *Child Development, 55*, 1278–1289.

Beckett, C., & Fluke, D. (1988). Supported employment: Parental involvement. *Exceptional Parent, 18*, 20–26.

Billingsley, F., White, O. R., & Munson, R. (1980). Procedural reliability: A rationale and an example. *Behavioral Assessment, 2*, 229–241.

Brinker, R. P. (1985). Interactions between severely mentally retarded students and other students in integrated and segregated public school settings. *American Journal of Mental Deficiency, 89*, 587–594.

Butterworth, J., Hagner, D., Kiernan, W. E., & Schalock, R. L. (in press). Natural supports in the workplace and community: Defining an agenda for research and practice. *Journal of the Association for Persons With Severe Handicaps.*

Callahan, M. (1992). Job site training and natural supports. In J. Nisbet (Ed.), *Natural supports in school, at work, and in the community for people with severe disabilities* (pp. 257–276). Baltimore: Brookes.

Certo, N. J., Lee, M., Mautz, D., Markey, L., Toney, L., Toney, K., & Smalley, K. (1996). *Natural supports case study: Assisting Lisa to connect with her dreams.* Unpublished Manuscript. San Francisco: San Francisco State University.

Chadsey-Rusch, J. (1992). Toward defining and measuring social skills in employment settings. *American Journal on Mental Retardation, 96*, 405–418.

Dodge, K. A. (1983). Behavioral antecedents of peer social status. *Child Development, 54*, 1386–1399.

BEST COPY AVAILABLE

Fabian, E. S., Edelman, A., & Leedy, M. (1993). Linking workers with severe disabilities to social supports in the workplace: Strategies for addressing barriers. *Journal of Rehabilitation, 59*, 29–34.

Felton, B. J., & Berry, C. (1992). Groups as social network members: Overlooked sources of social support. *American Journal of Community Psychology, 20*, 253–261.

Felton, B. J., & Shinn, M. (1992). Social integration and social support: Moving "social support" beyond the individual level. *Journal of Community Psychology, 20*, 103–115.

Flexer, R., Goebel, G., Baer, R., Simmons, T., Martonyi, E., Shell, D., Steele, R., & Sabousky, R. (1994). Participant, employer, and rehabilitation resources in supported employment: A collaborative support approach. *Journal of Applied Rehabilitation Counseling, 25*, 9–15.

Goetz, L., Certo, N. J., Doering, K., & Lee, M. (1996). Meaningful work and people who are deaf-blind. In D. Lehr & F. Brown (Eds.), *Individuals with disabilities who challenge the system* (pp. 253–305). Baltimore: Brookes.

Griffin, C. (1994). Organizational natural supports: The role of leadership in facilitating inclusion. *Journal of Vocational Rehabilitation, 4*, 296–307.

Hagner, D. (1989). *The social integration of supported employees: A qualitative study*. Unpublished doctoral dissertation, Syracuse University, Syracuse, NY.

Hagner, D., Butterworth, J., & Keith, G. (1995). Strategies and barriers in facilitating natural supports for employment of adults with severe disabilities. *Journal of the Association for Persons With Severe Handicaps, 20*, 110–120.

Hanley-Maxwell, C., & Millington, M. (1992). Enhancing independence in supported employment: Natural supports in business and industry. *Journal of Vocational Rehabilitation, 2*, 51–58.

Haring, T. G. (1991). Social relationships. In L. H. Meyer, C. A. Peck, & L. Brown (Eds.), *Critical issues in the lives of people with severe disabilities* (pp. 195–217). Baltimore: Brookes.

Heitzmann, C. A., & Kaplan, R. M. (1988). Assessment of methods for measuring social support. *Health Psychology, 7*, 75–109.

Heller, K. (1989). The return to community. *American Journal of Community Psychology, 17*, 1–15.

Hobbs, T., & Allen, W. (1989). *Preparing for the future: A practical guide for developing individual transition plans*. Napa, CA: California Institute on Human Services.

Horner, R. H. (1991). The future of applied behavior analysis for people with severe disabilities: Commentary I. In L. H. Meyer, C. A. Peck, & L. Brown (Eds.), *Critical issues in the lives of people with severe disabilities* (pp. 607–611). Baltimore: Brookes.

Horner, R. H., Newton, J. S., & Stone, S. K. (1988). *The community network project: Research strategies for supporting social networks* (Contract No. 84.1583). Washington, DC: U.S. Department of Education.

House, J. S. (1981). *Work, stress, and social supports*. Reading, MA: Addison-Wesley.

Hughes, C., Rusch, F. R., & Curl, R. M. (1990). Extending individual competence, developing natural support, and promoting social acceptance. In F. R. Rusch (Ed.), *Supported employment: Models, methods, and issues* (pp. 181-197). Sycamore, IL: Sycamore Publishing Company.

Kennedy, C. H., Horner, R. H., & Newton, J. S. (1989). Social contacts of adults with severe disabilities living in the community: A descriptive analysis of relationship patterns. *Journal of The Association for Persons With Severe Handicaps, 14*, 190–196.

Kennedy, C. H., Horner, R. H., & Newton, J. S. (1990). The social networks and activity patterns of adults with severe disabilities: A correlational analysis. *Journal of The Association for Persons With Severe Handicaps, 15*, 86–90.

Kregel, J. (Fall, 1994). Natural supports and the job coach: An unnecessary dichotomy. *Rehabilitation Research and Training Center at Virginia Commonwealth University Newsletter*, 1.

Lee, M., Storey, K., Anderson
instruction on integration
publication.

Likins, M., Salzberg, C. L., St
worker implemented job
checking procedures on
dation. *Journal of Applied*

Mank, D. M. (1994). The unde
ment. *Journal of Disability*

Mank, D. M., & Buckley, J. (19
W. Kiernan & R. Schaloc
319-335). Baltimore: Broo

Mannarino, A. P. (1980). The
Chapman, & J. R. Smith
New York: Wiley.

Marrone, J., Balzell, A., & Gold
with mental illness. *Psych*

Mount, B., & Zwernik, K. (198
futures planning (Publica
Planning Council on Dev

Murphy, S. L. (1992). *The effec*
Unpublished master's the

Murphy, S. T., & Rogan, P. M
tioner's guide. St. Augustir

Nisbet, J. (1992). *Natural suppor*
disabilities. Baltimore: Bro

Nisbet, J., Clark, M., & Covert, S
living. In L. H. Meyer, C
with severe disabilities (pp

Nisbet, J., & Hagner, D. (198
supported employment. J
260–267.

Nisbet, J., Zanella, K., & Miller,
students and a nonhandic

O'Brien, J. (1987). A guide to li
services and natural supp
hensive guide to the Activiti
severe disabilities (pp. 175-1

Parent, W., Unger, D., Gibson, K
trating community and w

Rhodes, L., Sandow, D., Mank,
employers in supported e
Handicaps, 16, 213–217.

Rogan, P., Hagner, D., & Murph
roles. *Journal of the Associat*

Rusch, F. R., & Minch, K. E. (1
employment: A review and

Rusch, F. R., Weithers, J. A., Me
program to reduce the top
ment of the Mentally Retard

Shafer, M. S. (1986). Utilizing co-
employment issues and strate

BEST COPY AVAILABLE

workers with severe disabilities to
dressing barriers. *Journal of Rehabili-*

k members: Overlooked sources of
hology, 20, 253–261.
nd social support: Moving "social
mmunity Psychology, 20, 103–115.
E., Shell, D., Steele, R., & Sabousky,
n resources in supported employ-
Applied Rehabilitation Counseling, 25.

aningful work and people who are
als with disabilities who challenge the

role of leadership in facilitating
–307.
es: A qualitative study. Unpublished
NY.
and barriers in facilitating natural
sabilities. *Journal of the Association*

independence in supported em-
Journal of Vocational Rehabilitation.

C. A. Peck, & L. Brown (Eds.),
pp. 195–217). Baltimore: Brookes.
of methods for measuring social

urnal of Community Psychology, 17,

actical guide for developing individual
Human Services.
alysis for people with severe dis-
& L. Brown (Eds.), *Critical issues*
Baltimore: Brookes.
mmunity network project: Research
84.1583). Washington, DC: U.S.

ng, MA: Addison-Wesley.
ndividual competence, developing
In F. R. Rusch (Ed.), *Supported*
Sycamore, IL: Sycamore Publish-

al contacts of adults with severe
analysis of relationship patterns.
dicaps, 14, 190–196.
The social networks and activity
relational analysis. *Journal of The*
–40.
ach: An unnecessary dichotomy.
ia Commonwealth University News-

Lee, M., Storey, K., Anderson, J., & Goetz, L. (1996). *The effect of co-worker versus job coach instruction on integration in supported employment settings.* Manuscript submitted for publication.

Likins, M., Salzberg, C. L., Stowitschek, J. J., Lignugaris/Kraft, B., & Curl, R. (1989). Co-worker implemented job training: The use of coincidental training and quality-control checking procedures on the food preparation skills of employees with mental retardation. *Journal of Applied Behavior Analysis, 22,* 381–393.

Mank, D. M. (1994). The underachievement of supported employment: A call for reinvestment. *Journal of Disability Policy Studies, 5,* 1–24.

Mank, D. M., & Buckley, J. (1989). Strategies for integrating employment environments. In W. Kiernan & R. Schalock (Eds.), *Economics, industry, and disability: A look ahead* (pp. 319-335). Baltimore: Brookes.

Mannarino, A. P. (1980). The development of children's friendships. In H. C. Foot, A. J. Chapman, & J. R. Smith (Eds.), *Friendships and social relations in children* (pp. 45–63). New York: Wiley.

Marrone, J., Balzell, A., & Gold, M. (in press). The nature of employment supports for people with mental illness. *Psychiatric Services.*

Mount, B., & Zwernik, K. (1988). *It's never too early, it's never too late—A booklet about personal futures planning* (Publication No. 421-88-109). St. Paul, MN: Minnesota Governor's Planning Council on Developmental Disabilities.

Murphy, S. L. (1992). *The effects of using co-workers in training workers with severe disabilities.* Unpublished master's thesis, San Francisco State University, San Francisco.

Murphy, S. T., & Rogan, P. M. (1994). *Developing natural supports in the workplace: A practitioner's guide.* St. Augustine, FL: Training Resource Network.

Nisbet, J. (1992). *Natural supports in school, at work, and in the community for people with severe disabilities.* Baltimore: Brookes.

Nisbet, J., Clark, M., & Covert, S. (1991). Living it up!: An analysis of research on community living. In L. H. Meyer, C. A. Peck, & L. Brown (Eds.), *Critical issues in the lives of people with severe disabilities* (pp. 115–144). Baltimore: Brookes.

Nisbet, J., & Hagner, D. (1988). Natural supports in the workplace: A reexamination of supported employment. *Journal of the Association for Persons with Severe Handicaps, 13,* 260–267.

Nisbet, J., Zanella, K., & Miller, J. (1984). An analysis of conversations among handicapped students and a nonhandicapped peer. *Exceptional Children, 51,* 156–162.

O'Brien, J. (1987). A guide to life-style planning: Using the Activities Catalog to integrate services and natural support systems. In B. Wilcox & G.T. Bellony (Eds.), *A comprehensive guide to the Activities Catalog: An alternative curriculum for youth and adults with severe disabilities* (pp. 175-189). Baltimore: Brookes.

Parent, W., Unger, D., Gibson, K., & Clements, C. (1994). The role of the job coach: Orchestrating community and workplace supports. *American Rehabilitation, 20,* 2–11.

Rhodes, L., Sandow, D., Mank, D., Buckley, J., & Albin, J. (1991). Expanding the role of employers in supported employment. *Journal of the Association for Persons with Severe Handicaps, 16,* 213–217.

Rogan, P., Hagner, D., & Murphy, S. (1993). Natural supports: Reconceptualizing job coach roles. *Journal of the Association for Persons with Severe Handicaps, 18,* 275–281.

Rusch, F. R., & Minch, K. E. (1988). Identification of co-worker involvement in supported employment: A review and analysis. *Research in Developmental Disabilities, 9,* 247–254.

Rusch, F. R., Weithers, J. A., Menchetti, B. M., & Schutz, R. P. (1980). Social validation of a program to reduce the topic repetition in a non-sheltered setting. *Education and Treatment of the Mentally Retarded, 15,* 208–215.

Shafer, M. S. (1986). Utilizing co-workers as change agents. In F. R. Rusch (Ed.), *Competitive employment issues and strategies* (pp. 215–224). Baltimore: Brookes.

BEST COPY AVAILABLE

Smull, M. W., Danehey, A. J. (1994). Increasing quality while reducing costs: The challenge of the 1990s. In V. J. Bradley, J. W. Ashbaugh, & B. C. Blaney (Eds.), *Creating individual supports for people with developmental disabilities: A mandate for change at many levels* (pp. 59–78). Baltimore: Brookes.

Storey, K. (1993). A proposal for assessing integration. *Education and Training in Mental Retardation, 28*, 279–287.

Storey, K., Ezell, H., & Lengyel, L. (1995). Communication strategies for increasing the integration of persons in supported employment: A review. *American Journal of Speech-Language Pathology, 4*, 45–54.

Storey, K., & Gaylord-Ross, R. (1987). Increasing positive social interactions by handicapped individuals during a recreational activity using a multicomponent treatment package. *Research in Developmental Disabilities, 8*, 627–649.

Storey, K., & Horner, R. H. (1991a). Social interactions in three supported employment options: A comparative analysis. *Journal of Applied Behavior Analysis, 24*, 349–360.

Storey, K., & Horner, R. H. (1991b). An evaluative review of social validation research involving persons with handicaps. *Journal of Special Education, 25*, 352–401.

Storey, K., & Knutson, N. (1989). A comparative analysis of the social interactions of workers with and without disabilities in integrated work sites: A pilot study. *Education and Training in Mental Retardation, 24*, 265–273.

Storey, K., & Lengyel, L. (1992). Strategies for increasing interactions in supported employment settings: A review. *Journal of Vocational Rehabilitation, 2*, 46–57.

Test, D. W., & Wood, W. M. (in press). Natural supports in the workplace: The jury is still out. *Journal of the Association for Persons With Severe Handicaps*.

Udvari-Solner, A. (1990). Variables associated with the integration of individuals with intellectual disabilities in supported employment settings (Doctoral dissertation, University of Wisconsin–Madison, 1990). *Dissertation Abstracts International, 51*, 4102-A.

Wehman, P. (1995). Editorial. *Journal of Vocational Rehabilitation, 5*, 169–171.

Wehman, P., & Moon, M. S. (1987). Critical values in employment programs for persons with Developmental Disabilities: A position paper. *Journal of Applied Rehabilitation Counseling, 18*, 12–16.

Woolcock, W. W. (1995). Natural supports in the community. In W. W. Woolcock & J. W. Domaracki (Eds.), *Instructional strategies in the community: A resource guide for community instruction for persons with disabilities* (pp. 199–220). Austin, TX: Pro-Ed.

Yan, X., Storey, K., Rhodes, L., Sandow, D., Petherbridge, R., & Loewinger, H. (1990). Clique analysis of interpersonal interactions: Grouping patterns in a supported employment work setting. *Behavioral Assessment, 12*, 337–354.

Zivolich, S., Shueman, S. A., & Weiner, J. S. (1996). *An exploratory cost-benefit analysis of natural support strategies in the employment of people with severe disabilities*. Unpublished manuscript, Integrated Resources Institute, Irvine, CA.

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Running Head: HYGIENE

The Use of Self-Management Strategies for Increasing the Appropriate Hygiene of Employment Settings in Supported

Jennifer Traviss Garff
and
Keith Storey
Chapman University

(In press)
Education and Training in Mental Retardation and
Developmental Disabilities

ABSTRACT

In the professional literature to date, very little research has been done to examine the effects of self-management in addressing hygiene issues for persons with developmental disabilities in supported employment settings. Three individuals in different supported employment settings participated in this study. Each of the three had hygiene issues that could negatively affect their jobs and social relationships. The intervention that was utilized with each participant consisted of: (a) the development of a check-list (task analysis) with the steps necessary to address their particular hygiene issue; (b) modeling the steps to each participant; (c) providing praise and feedback as each participant completed the steps and learned to do all of them independently; and (d) teaching the participants to self-reinforce. The results of this research demonstrated that individuals with disabilities in supported employment settings who were taught self-management strategies to address their hygiene had a significant increase in what constituted "appropriate" hygiene at the job site.

The Use of Self-Management Strategies for Increasing the Appropriate Hygiene of Persons with Disabilities in Supported Employment Settings

Appropriate hygiene and self-care skills are critical in supported employment settings. Possessing these skills can lead to more autonomy, increased self-esteem , better work performance, higher wages and more rewarding social relationships (Abery & Eggebeen, 1993, Sinnott-Oswald et al., 1993). Self management has been used effectively to address these and many other issues in the work place.

Despite the fact that great progress has been made in supported employment, many adults with developmental disabilities continue to be unsuccessful when they enter into supported employment settings (Hanley-Maxwell, Rusch, Chadsey-Rusch, & Renzaglia, 1986). Of those who do secure employment, many eventually encounter problems, such as hygiene issues, that lead to their termination. Lagomarcino (1990) lists poor appearance as one of the primary reasons for job separation from supported employment.

Different types of supports have been available and have been recommended within the area of supported employment over the years. Job coaches have traditionally provided most of the support for persons with developmental disabilities at supported employment sites, acting as facilitator, trainer and liaison between the person with disabilities and the rest of the job site staff (Parent, Unger, Gibson, & Clements, 1994). An additional type of support that has had positive documented affects is the use of self-management strategies (Martin & Hrydowy, 1989). Self-management strategies have enabled people with developmental disabilities to monitor and be in control of their own work performance, production rate, socialization, hygiene and many other issues. For example, Martin and Hrydowy (1989) report that self management can lead to higher productivity, higher wage earnings, potential for higher paying jobs and increased potential for gainful employment in the competitive labor market. Wehman, Sale and Parent (1992) report that self-management procedures have been successful with adults with developmental disabilities in social, academic, daily-living, and vocational applications. Wheeler, Bates, Marshall, and Miller (1988) report that self-management promotes independence and maintenance of behaviors. Teaching self-management strategies to workers with developmental disabilities in supported employment settings increases their ability to function in the workplace in the absence of external guidance and instruction (Buckley & Mank, 1988).

Hygiene is an important personal living skill. Many persons with developmental disabilities are in need of assistance in this area (Wheeler et al., 1988). Snell and Farlow (1993) state that self-care is critical for individuals with disabilities if they are to maintain good health, increase their personal independence, and enjoy acceptance in integrated environments. In a discussion of functional performance and adaptation of individuals with disabilities, Chen, Bruininks, Lakin, and Hayden (1993) state that persons with disabilities need to be trained in and possess personal competence in the area of self-care and functional personal living skills in order to function successfully in the community. Riches (1993) feels that the most appropriate context for such learning to take place is in the home.

Reisman and Reisman (1993) list grooming and hygiene issues as problems that often or sometimes affect job performance as rated by job supervisors. In a study conducted by Hanley-Maxwell et al. (1986) poor grooming is listed several times as a reported factor contributing to job terminations of persons with disabilities. The majority of job sites would find poor hygiene unacceptable and lack of skills in this area could jeopardize employment (Riches, 1993). Although poor hygiene and grooming may not necessarily result in job loss, it will usually cause problems and could severely affect social integration at job sites (Riches, 1993).

Harchik, Sherman, and Sheldon (1992) report that there has been little research examining methods to teach people with developmental disabilities how to select their own behaviors and modify these behaviors. They conclude that research should include ways to teach people with developmental disabilities to use self-management procedures successfully and in ways that promote improved functioning in their living and working situations. Studies and reviews such as Hanel and Martin (1980), Hughes (1991), Martin and Hrydowy (1989), Srikameswaran and Martin (1984), and

Shafer (1987) show that self-management has been used with persons with disabilities to improve work performance, production rates, generalization, productivity and conversation skills. Self-management refers to a person's ability to monitor his or her performance through the use of external prompts or procedures such as self-instruction, labels, picture cues, checklists, pictorial booklets, pre-taped instructions, and/or tactile cues (Moon, Inge, Wehman, & Barcus, 1990).

Patton, Polloway, Smith, Edgar, Clark, and Lee (1996) report that traditional reliance on extrinsic forms of reinforcement with persons with disabilities can encourage dependence and perhaps even learned helplessness. Wheeler et al. (1988) state that one of the primary advantages of self-management is that the worker becomes involved in the behavior change process. This promotes independence and can reduce the need for extensive supervision. These authors suggest that with the use of self-management methods and the gradual fading of traditional support networks, this approach should result in an individual with disabilities maintaining employment and working with a large degree of independence. In support of this contention, Wehman et al. (1992) state that self-management strategies are a way for a worker to function in the workplace in the absence of external guidance and instruction.

Checklists are one way for persons with developmental disabilities to self-manage their behavior. Buckley and Mank (1988) suggest that a checklist can be arranged in the order in which each task, step within a task, or series of tasks is to be performed. Reisman and Reisman (1993) state that a self-monitoring checklist can produce a sense of mastery as completed tasks or progress on problem behaviors are checked off. Individuals who learn a system for self-determined consequences may increase their autonomy and improve their own working conditions.

Wheeler, et al. (1988) incorporated the use of self-management strategies in working with a young man with developmental disabilities who was employed in a university vivarium as an animal caretaker. The purpose of the study was to validate the effectiveness of a self-management training package incorporating a self-monitoring checklist to increase his appropriate social skills and hygiene skills. Seven problem behaviors were identified during baseline and five were identified as appropriate for the self-management intervention. The participant's trainer provided instruction on how to use a self-monitoring checklist to address the behaviors. As a result of his self-monitoring, all five of his problem behaviors were greatly reduced. He was able to retain his employment and was given additional, more complex job responsibilities. One of the participants' problem behaviors was that he did not consistently shave for work. The use of the self-management checklist increased the percentage of days that he was clean shaven from 66% to 88%.

What is missing within the research literature is evaluation of self-management strategies to improve the hygiene of workers with developmental disabilities in supported employment settings. The purpose of this study was to evaluate the effectiveness of a self-management check list to improve the self-care skills of workers with developmental disabilities in supported employment settings and to teach them to self-reinforce their behavior.

Method

Participants

Three employees with developmental disabilities and hygiene issues that negatively affected job performance, job evaluations, and social relationships participated in this study.

Jack was a 26-year-old male. He had been labeled as having mild mental retardation, developmental disabilities, and a moderate learning disability. He was in special education from the beginning of elementary school. At that time Jack was diagnosed with a language disability and with significant learning disabilities. Two years after graduating from high school, Jack was employed on a work crew. After his work crew experience, Jack worked in an enclave at a plant nursery for 5 months. He then was placed in his first individual supported employment setting at a pet store and worked there for one year. At the start of this study, Jack had worked at the gas station for 12 months.

Ellen was a 56-year-old female. She had been diagnosed with mild mental retardation, developmental disabilities, and a speech impediment. Ellen was observed to be developing slowly soon after she entered school and was placed in special education. She stayed in school through the eighth grade, receiving special education services that entire time. Ellen resided at a state institution over an 8 year period and during two other one year periods. When she was not at the institution, she lived with her mother. From the ages of 30 to 53, Ellen worked in several different sheltered workshops. At the age of 39 she was married and has lived with her husband in an apartment ever since that time. At age 53 Ellen was placed at a music store where she worked as a maintenance clerk. She worked there for several months and then got another job at a fast food restaurant. Ellen kept both jobs for a few months, after which she quit her job at the music store and picked up more hours at the fast food restaurant. She had worked there for 14 months at the start of this study.

Don was a 39-year-old male who had been diagnosed with cerebral palsy and mild mental retardation. Due to many surgeries as a child, he received most of his education in hospitals with tutors. After graduating from high school at the age of 20 he worked in a sheltered workshop for 15 years. After this period of time he was placed in an enclave position as a concession stand worker. When Don was 38 he was placed in an individual supported employment position, working as a parking lot attendant. With assistance, he was able to secure an apartment close to his job site and lived there independently.

He had worked in this capacity for 14 months at the start of this study.

Settings

Data collection for Jack took place in his work setting at the gas station. Employees present during his work day usually included Jack, three non-disabled co-workers, and his supervisor. Jack worked, on average, four days a week for eight hours each day. Additional employees were occasionally present though not on a regular basis. Jack worked in the station cleaning bathrooms and stocking shelves and outside of the station cleaning gas pumps and hosing down the asphalt. All of the people present at work were familiar with Jack. Jack's supervisor, Ron, recorded the data when Jack arrived at work in the morning.

Data collection for Ellen took place in her work setting at a fast food restaurant. Employees present during her work day usually included Ellen, four non-disabled co-workers and her supervisor (the store manager). Her co-workers remained consistent. Ellen worked two days a week in four hour shifts. Ellen restocked restaurant and bathroom supplies and cleaned bathrooms, floors, booths, and windows. All of the people present at work were familiar with Ellen. Her supervisor, Beth, recorded data when Ellen arrived at work in the morning.

Data collection for Don took place in his work setting at a public parking lot. He interacted regularly with patrons of nearby businesses and drivers of the cars that came into the lot.

Don had a supervisor who came to the lot periodically, but who was not there on a regular basis. He had one co-worker with disabilities and their work day overlapped one half hour. Don worked three days a week in four hour shifts. He marked car tires in the lot to indicate the length of time they could park there. He also gave out tickets to those who had been in the lot too long. Don's job coach went out to observe him on each of his work days and took data when Don arrived at the job site.

Dependent Variables

A yes/no questionnaire was given to the job coach for Don and to the supervisors for Jack and Ellen. This questionnaire was to determine whether or not the participant's hygiene was appropriate for each work day. On each checklist a definition of what would qualify as a yes or no response was provided. The researcher and supervisors discussed the definition with the job coaches and supervisors so that they were clear on what constituted appropriate hygiene. The supervisor then checked a yes or no on the data collection sheet for each of the participants' work days. Job coaches and supervisors were unaware of when the intervention was started.

Social Validation

Social validity of the social importance of intervention outcomes was assessed by having the job coaches/supervisors rate the employees' hygiene skills before and after intervention using a 10-point Likert-type scale. The job coaches/supervisors were not shown their rating from before the intervention started when responding to the post-intervention questions.

Experimental Design

A multiple baseline across participants design was used to evaluate the effectiveness of the intervention procedures.

Baseline

No changes were made in any of the participants' self-care or work routines during baseline. The yes/no questionnaires were scored when the employees first arrived at work. Jack's supervisor evaluated whether or not he was clean shaven. Ellen's supervisor talked closely with her to evaluate whether or not she had fresh and clean breath. Don's job coach evaluated whether or not he had food on his face and/or mustache.

Intervention

A self-reinforcer survey was given to each of the three participants during their first meeting with the researcher. This survey later enabled the researcher and participants to discuss ways that the participants could reinforce their behavior during intervention. The survey was given to ensure that the chosen reinforcer would be motivating to the participants.

Following several weeks of baseline data on each participant, the hygiene self-management checklists were introduced sequentially across participants. A several step checklist was used to teach the participants to break down the hygiene issue that was to be addressed. Because the hygiene issues were unique, all three checklists were specific to the needs of each participant.

The researcher began the intervention by introducing the checklists to Jack in his home. Jack had two different checklists/task analyses, one was for shaving with an electric razor and the other was for shaving manually. He chose which checklist to use depending on his shaving preference for any particular day. The first task analysis was for shaving with an electric razor and it consisted of 7 steps for shaving and 5 steps for weekly cleaning. The steps for shaving involved Jack checking his face, getting out the shaving materials, shaving, tapping the razor in the sink to remove hair, and replacing the head of the razor. The cleaning steps involved brushing out the hair in the razor, replacing the head, and checking the recharge light. Jack's second checklist consisted of 11 steps for manual shaving. This task analysis involved filling the sink with water, putting shaving gel on his face, shaving, cleaning the razor, draining the sink, and rinsing and toweling off his face.

The researcher initially modeled one step at a time on the list and then had Jack complete the same step following her model. The researcher gave continual feedback and praise on his acquisition of the steps. When Jack could successfully complete each step on the list, the researcher modeled the entire checklist of steps and then had Jack go through each step on his own, checking them off as he went. The researcher worked with him for six days until he did all of the steps on each list independently, without a model. He was then given a list with the days of the week to keep track of the days that he shaved before work. If he shaved four days out of the week he was to purchase a crossword puzzle book for himself. This was Jack's self-selected reinforcer. After assessing that this was within his budget, the researcher went with Jack to purchase his first crossword puzzle book, after which he was responsible for purchasing his own.

The second participant was Ellen. The researcher went to her house, introduced her checklist to her and modeled all of the steps on the list. Ellen's checklist contained steps to ensure that she had fresh breath when she arrived at work. Her task analysis consisted of 7 steps which included; brushing her teeth for one minute, gargling with mouth wash, swallowing breath control tablets, using breath spray, and taking gum and mints to work with her. The researcher first modeled each step and had Ellen repeat the step, while giving her feedback and praise. When she was independently completing each individual step, the researcher went through the entire checklist and Ellen went through the entire list after her, checking off each step as she went. The researcher worked with her for three days, after which she had the list memorized. After two consecutive work weekends (Friday and Saturday) with fresh breath, she was to buy herself a crossword puzzle book. This also happened to be Ellen's self-selected reinforcer. Again, the researcher went with her to purchase the crossword puzzle book the first time that she had fresh breath for two work weekends. After that, she purchased them on her own.

The third participant was Don. The researcher went to his house, introduced his checklist to him and modeled all of the steps on the list. Don's checklist consisted of 5 steps that enabled him to leave the house without food on his face or mustache. His task analysis consisted of: checking his face and clothes after eating lunch, using a wet washcloth to wipe his face, and brushing any crumbs off of his shirt or tie. The researcher originally modeled each step, asking Don to complete the same step after her. She provided feedback and praise as he went through each step. When he was comfortable with each individual step, the researcher modeled all of the steps in succession and had Don do the same. After working with him for four days he was doing all of the steps independently. With one work week (three days) of a clean face at work, he was to purchase a six pack of Dr. Pepper for himself. This was his self-selected reinforcer. The researcher went with Don to purchase his first six pack of Dr. Pepper after one full work week with a clean face.

Interobserver Agreement

Interobserver agreement was established in two ways. First, by having the researcher record data in the same manner as the primary observer (job coach/supervisor). This occurred across all phases of the study. Interobserver agreement was calculated by dividing the number of agreements by the number of agreements plus disagreements, and multiplying by 100. The interobserver agreement occurred on 21 out of the 123 (17%) observation sessions with a mean of 100%.

The second type of interobserver agreement occurred by having an observer who was naive as to the purpose of the study record data in the same manner as the primary observer (job coach/supervisor) and occurred across all phases of the study. The interobserver agreement occurred on 10 of the 123 (8%) observation sessions with a mean of 100%.

Results

Following intervention, the data indicated that each of the three participants demonstrated an increase in their appropriate hygiene skills. Jack's baseline data indicated that he received "yes" responses on 3 out of 17 (18%) consecutive work days. Jack's intervention data indicated that he received "yes" responses on 32 out of 41 (78%) consecutive work days.

Ellen's baseline data indicated that she received "yes" responses on 1 out of 11 (9%) consecutive work days. Ellen's intervention data indicated that she received "yes" responses on 11 out of 12 (92%) consecutive work days.

Don's baseline data indicated that he received "yes" responses on 9 out of 21 (43%) consecutive work days. Don's intervention data indicated that he received "yes" responses on 8 out of 9 (89%) consecutive work days. These data can be found in Figure 1.

Social Validation

The social validation results are provided in Table 1. Jack's supervisor rated his hygiene as higher following intervention than during baseline. Jack's rating for performance evaluations, general hygiene, and hygiene maintenance improved (questions 1, 3, and 4). He had fewer interactions with non-disabled co-workers (question 2). His supervisor rated the intervention procedures as being effective in increasing Jack's hygiene skills (question 5). Ellen's supervisor rated her hygiene skills as higher following intervention than during baseline. Her supervisor rated her interaction with non-disabled co-workers the same as in baseline. Her supervisor rated the intervention as being very effective in increasing Ellen's hygiene skills. Don's job coach rated his hygiene as higher following intervention than during baseline. His job coach also rated his interactions with non-disabled co-workers as higher. She rated his need for assistance in maintaining good hygiene as the same as in baseline. She rated the intervention as being very effective in increasing Don's hygiene skills.

Discussion

This study provides further support that self-management strategies are effective in addressing hygiene issues for persons with developmental disabilities in supported employment settings. The results indicate that there was a positive change for each of the three participants. Their hygiene "appropriate" days increased and their social validation ratings improved. Each participants' post-intervention hygiene rating was substantially higher than their pre-intervention rating. These data illustrated that, although no participant received all "yes" responses after the intervention, the participants were able to utilize the self-management checklist before work on almost all of their work days.

Given the high rate of unemployment and the high percentage of job terminations for persons with disabilities, research that addresses the issue of hygiene and self-management appears critical. Not only is self-care essential for work in a professional environment and for health reasons, but difficulties with hygiene can also significantly affect social relationships. One of the primary benefits of supported employment is the opportunity for individuals with disabilities to form social relationships with individuals without disabilities. It is logical to assume that the better a person's hygiene, the more likely it will be for people to want to be around and interact with that individual.

Although very little research has been done in this area, this study suggests that the use of self-management strategies to address hygiene issues in supported employment can be an effective strategy. Further research on the best type of self-management strategies to be used is needed. Studies with more maintenance data would also be valuable to see if the participants continue to use the skills learned. The field of supported employment needs to continue to look at support strategies that meet the needs of each individual. As is evidenced, self-management procedures are well suited for work with individuals with varying needs and at various levels. Research needs to examine any and all strategies that could enable a person with developmental disabilities to have success on the job, especially if those strategies do not foster further dependence on outside professionals.

Further studies need to explore issues such as: What are the best self-management strategies to address hygiene? Who should teach the self-management strategies? How much reinforcement is necessary for individuals to maintain an appropriate level of hygiene? Is self-reinforcement enough to ensure maintenance? Do self-management strategies that address hygiene impact social relationships on the job? Does teaching self-management strategies to persons in sheltered workshops enable them to get into the community at a faster rate? Do better hygiene skills affect an individuals' pay? Future research should explore this issue further to expand the knowledge base that assists individuals with disabillities in order to increase their quality of life, which is the ultimate goal of supported employment.

References

Abery, B., & Eggebeen, A. (1993). A descriptive study of the self-determination skills and opportunities of youth with mental retardation. Paper presented at the annual meeting of the American Association on Mental Retardation, Washington, DC.

Buckley, J., & Mank, D.M. (Spring 1988). Self-management programming for supported employment. Employment News. Eugene, OR: University of Oregon.

Chen, T., Bruininks, R.H., Lakin, K.C., & Hayden, M. (1993). Personal competencies and community participation in small community residential programs: A multiple discriminant analysis. American Journal on Mental Retardation, 98, 390-399.

Hanel, F., & Martin, G. (1980). Self-monitoring, self-administration of token reinforcement, and goal-setting to improve work rates with retarded clients. International Journal of Rehabilitation Research, 3, 505-517.

Hanley-Maxwell, C., Rusch, F., Chadsey-Rusch, J., & Renzaglia, A. (1986). Reported factors contributing to job terminations of individuals with severe disabilities. Journal of the Association for Persons with Severe Handicaps, 11, 45-52.

Harchik, A.E., Sherman, J.A., & Sheldon, J.B. (1992). The use of self-management procedures by people with developmental disabilities: A brief review. Research in Developmental Disabilities, 13, 211-227.

Hughes, C. (1991). Independent performance among individuals with mental retardation: Promoting generalization through self-instruction. In M. Hersen , R. Eisle, & P. Miller (Eds.), Progress in behavior modification (pp.7-34). Newbury Park, CA: Sage Publications.

Lagomarcino, T.R. (1990). Job separation issues in supported employment. In F.R. Rusch (Ed.), Supported employment: Models, methods, and issues (pp. 301-316). Sycamore, IL: Sycamore Publishing Company.

Martin, G.L., & Hrydowy, E.R. (1989). Self-monitoring and self-managed reinforcement procedures for improving work productivity of developmentally disabled workers. Behavior Modification, 13, 323-339.

Moon, M.S., Inge, K.J., Wehman, P., Brooke, V., & Barcus, J.M. (1990). Helping persons with severe mental retardation get and keep employment. Baltimore, MA: Paul H. Brooks Publishing Company.

Parent, W., Unger, D., Gibson, K., & Clements, C. (1994). The role of the job coach: Orchestrating community and workplace supports. American Rehabilitation, 20, 2-11.

Patton, J.R., Polloway, E.A., Smith, T.E.C., Edgar, E., Clark, G.M., & Lee, S. (1996). Individuals with mild mental retardation: Postsecondary outcomes and implications for educational policy. Education and Training in Mental Retardation and Developmental Disabilities, 31, 75-84.

Reisman, E.S., & Reisman, J.I. (1993). Supervision of employees with moderate special needs. Journal of Learning Disabilities, 26, 199-206.

Riches, V. C. (1993). Standards of work performance. Sydney, Australia: MacLennan & Petty Pty Limited.

Shafer, M.S. (1987). Supported competitive employment: The use of self-management programming in the follow-along process. Journal of Rehabilitation, 53, 31-36.

Sinnott-Oswald, M., Gliner, J.A., & Spencer, K.C. (1991). Supported and sheltered employment: Quality of life issues among workers with disabilities. Education and Training in Mental Retardation, 26, 388-397.

Snell, M.E., & Farlow, L.J. (1993). Self-care skills. In M.E. Snell (Ed.), Instruction of students with severe disabilities (pp. 380-441). New York, NY: Macmillan Publishing Company.

Srikameswaran, S., & Martin, G.L. (1984). A component analysis of a self-management program for improving work rates of mentally handicapped persons. Mental Retardation and Learning Disability Bulletin, 12, 39-52.

Wehman, P., Sale, P., & Parent, W. (1992). Supported employment: Strategies for integration of workers with disabilities. Boston, MA: Andover Medical Publishers.

Wheeler, J.J., Bates, P., Marshall, K.J., & Miller, S.R. (1988). Teaching appropriate social behaviors to a young man with moderate mental retardation in a supported competitive employment setting. _Education and Training in Mental Retardation, 23,_ 105-116.

Running Head: QUALITY OF LIFE

Quality of Life Issues in Social Skills Assessment of Persons with Disabilities

Keith Storey
Chapman University

Abstract

Quality of life issues in social skills assessment of persons with disabilities are reviewed and discussed in terms of definitions, measures, applications to social skills assessment, and future needs. It is argued that broader measures need to be used in social skills assessment in order to evaluate quality of life changes, that an operational definition be agreed upon, and that appropriate dependent measures will likely change over time and across populations.

Quality of Life Issues in Social Skills Assessment of Persons with Disabilities

Quality of life is becoming one of the most important driving forces in human services (Baker & Intagliata, 1982; Fabian, 1990; Fava & Magnani, 1988; Hughey & Bardo, 1987; Landesman, 1986; Murrell & Norris, 1983; Schalock, 1990a; Strain, Storey, & Smith, 1991; Sylvester, 1989; Tantam, 1988). For people with disabilities, integration with non-disabled peers is often seen as a crucial outcome and thus an important component of quality of life (Haring, 1991; Storey, 1993). An important component of achieving successful integration is having appropriate social skills (Chadsey-Rusch, 1992). It is often assumed that social skills instruction for persons with disabilities will positively effect a person's quality of life. However, this assumption has received little empirical validation. The connection between social skill interventions and quality of life is how social skill assessment measures quality of life. Social skill assessment has often focused upon single discreet measures of success such as rate of interaction, eye contact, facial expression, or toy grabbing (Foster & Ritchey, 1979; Green & Forehand, 1980; Knapczyk & Rodes, 1996; Robertson, Richardson, & Youngson, 1984). Though discreet measures are often very appropriate, they usually lack the breadth necessary to assess the wider impact of interventions. Without a broader assessment which directly assesses quality of life, it is difficult to assess the impact of social skills instruction on a person's quality of life.

The purpose of this article is to examine quality of life issues in social skills assessment of people with disabilities. Quality of life and social skills assessment will be examined in terms of definitions, how quality of life applies to social skills assessment, and future needs.

Definitions of Quality of Life

Unfortunately, it is not clear exactly what quality of life entails. Several global definitions for quality of life have been proposed, but no operational definition or appropriate measures have been agreed upon (Cameto, 1990; Lehman & Burns, 1990). Schalock, Keith, Hoffman, and Karan (1989) have suggested that for persons with disabilities, quality of life combines environmental control, community involvement, and perception of personal change. O'Connor (1983) indicated that social relationships and social support (emotional, informational, and material aid) are critical in determining quality of life. For the general public, Campbell (1981) discusses twelve "life domains" as being components of quality of life (education, marriage, family life, friendship, self, health, standard of living, the country, neighborhood, housing, residence, and work). What is clear from the literature is that quality of life is focused upon lifestyle outcomes for people and that though objective measures are important (i.e., economic indicators), quality of life often must be measured subjectively from an individual perspective (Campbell, 1976; Cheng, 1988; Csikszentmihalyi & LeFevre, 1989; Katzner, 1979; Zautra, 1983). Research has often found a poor correlation between objective indicators and subjective measures of life satisfaction (Hughes, Hwang, Kim, Eisenman, & Killian, 1995; Milbraith, 1982; Schneider, 1976). Therefore, it appears to be necessary to utilize both objective indicators and subjective measures in assessing quality of life (Andrews & Whitney, 1979), but to interpret results with caution, especially if the correlation between measures is poor. If good correlations between measures are found then these may be promising measures to use in future research. As an example in social skills research, objective measures such as the number of interactions between a high school student with a disability and nondisabled peers may be important. However, subjective measures such as the quality of the interactions and personal satisfaction with the number of interactions are perhaps as, if not more important. The student with disabilities may prefer to interact with only one or two peers and be more concerned with the quality of those interactions rather than the frequency. Increasing the frequency of the interactions may actually decrease the quality of life experience for that student.

What is clear from quality of life research is that multiple dependent variables are necessary to assess quality of life and that measures be outcome driven. Because it is a broad construct, no one measure will comprehensively evaluate quality of life. For example, Schalock (1990b) indicates that quality of life measures should include social indicators, psychological indicators, and goodness-of-fit/social policy indicators.

How Quality of Life Applies to Social Skills Assessment

An underlying assumption of social skills training is that acquiring appropriate social skills will positively affect the person's quality of life. This is an assumption that has unfortunately received little empirical validation (Gaylord-Ross, Park, Cameto, & Tappe, 1990). In order for this assumption to be tested it will be necessary to develop appropriate dependent variables. Though generalization of social skills training has often been assessed (Stokes & Osnes, 1986), the dependent measures utilized (i.e., across behaviors, settings, people, and times) generally lack the breadth necessary for quality of life evaluation (Hughes et al., 1995). For example, Gersten, Crowell, and Bellamy (1986) examined the spillover effects of vocational training on the lives of adults with severe disabilities outside of the work setting. The results indicated that there was limited impact from the vocational training on other aspects of the person's life. Though this was not unexpected, it does exemplify how broad measures need to be utilized in assessing the impact of interventions on quality of life.

An example of how social behavior and quality of life may be assessed is provided by Ramund and Stensman (1988) who represented quality of life by 30 different functions concerning psychological, interpersonal, physical and social aspects of life (derived from Berg, Hallauer, & Berk, 1976). The interpersonal relationships functions included close contact with family and friends, love and to be loved in return, sexual togetherness, living at home, and to get out in the countryside.

Future Needs

It will be necessary that operational definitions for quality of life be agreed upon. Otherwise, researchers will likely end up assessing whatever dimensions they wish and calling them "quality of life." It is also crucial that appropriate dependent variables be developed. For example, the measures of quality of life reported by Ramund and Stensman (1988) such as close contact with family and friends, love and to be loved in return, etc. are inexplicit and specific dependent variables for these components need to be developed and analyzed. Though these measures will necessarily differ from study to study, possible dependent variables for quality of life for people with disabilities in social skills research include: a) size and effectiveness of a person's social network, b) number of friends, c) frequency **and** quality of interactions across different people (i.e., family, co-workers, significant others) and places (work, school, home), and d) personal satisfaction with current social situation(s). In other words, we need to move from process variables to outcome variables.

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It is probable that appropriate quality of life measures will change over a person's lifespan (Stark & Goldsbury, 1990). In social skill interventions, peer measures, reports by others, and direct observation are used more with children while role-playing and self-report are used more with adolescents and adults. Quality of life measures must also reflect the population being studied. While many measures are generic across populations, some may be specific to different target populations. For example, a child with mental retardation might be taught specific approach behaviors towards nondisabled peers, whereas a person with visual impairments might be taught communication and problem-solving skills. It is possible that specific molecular activities that are often taught are not in fact the critical social functions that relate to important social criteria such as making friends. Thus we need to tie these effect variables together, using both molecular and molar outcome measures.

It will also be necessary to examine exemplary social skills strategies that positively influence a person's quality of life. The effectiveness of social skills interventions will be increasingly scrutinized as broader appropriate dependent variables are developed to assess the impact on the person's quality of life.

Conclusion

We can no longer be satisfied with single molecular assessments in determining the impact of social skills interventions. We need to look at broader quality of life evaluations in order to ensure that interventions are having a positive impact on individuals' lives. However, until a general consensus concerning a definition and appropriate measures emerge in the literature, it is likely that quality of life measures will be used occasionally, but will not be considered a necessary core component of research investigations. Investigators need to incorporate quality of life measures in their research. Indeed, they should be as common as reliability measures in order to ensure that research is having a positive impact on people with disabilities' quality of life.

References

Andrews, F. M., & Whitney, S. B. (1979). Social indicators of well-being: Americans' perceptions of life quality. New York, NY: Plenum Press.

Baker, F., & Intagliata, J. (1982). Quality of life in the evaluation of community support services. Evaluation and Program Planning, 5, 69-79.

Berg, R. L., Hallauer, D. S., & Berk, S. N. (1976). Neglected aspects of the quality of life. Health Service Research, 11, 391-395.

Cameto, R. (1990). Quality of life: Its conceptualization and use as a tool for social policy. Unpublished manuscript. San Francisco, CA: San Francisco State University.

Campbell, A. (1976). Subjective measures of well-being. American Psychologist, 31, 117-124.

Campbell, A. (1981). The sense of well-being in America. New York: McGraw-Hill.

Chadsey-Rusch, J. (1992). Toward defining and measuring social skills in employment settings. American Journal on Mental Retardation, 96, 405-418.

Cheng, S. (1988). Subjective quality of life in the planning and evaluation of programs. Evaluation and Program Planning, 11, 123-134.

Csikszentmihalyi, M., & LeFevre, J. (1989). Optimal experience in work and leisure. Journal of Personality and Social Psychology, 56, 815-822.

Fabian, E. S. (1990). Quality of life: A review of theory and practice implications for individuals with long-term mental illness. Rehabilitation Psychology, 35, 161-170.

Fava, G. A., & Magnani, B. (1988). Quality of life: A review of contemporary confusion. Medical Science Research, 16, 1051-1054.

Foster, S. L., & Ritchey, W. L. (1979). Issues in the assessment of social competence in children. Journal of Applied Behavior Analysis, 12, 625-638.

Gaylord-Ross, R., Park, H. S., Cameto, R., & Tappe, P. (1990). An ecosocial view of school and work: Social skills, social support, and quality of life. Manuscript submitted for publication.

Gersten, R., Crowell, F., & Bellamy, T. (1986). Spillover effects: Impact of vocational training on the lives of severely mentally retarded clients. American Journal of Mental Deficiency, 90, 501-506.

Green, K. D., & Forehand, R. (1980). Assessment of children's social skills: A review of methods. Journal of Behavioral Assessment, 2, 143-159.

Haring, T. G. (1991). Social relationships. In L. H. Meyer, C. A. Peck, & L. Brown (Eds.), Critical issues in the lives of people with severe disabilities (pp. 195-217). Baltimore: Paul H. Brookes.

Hughes, C., Hwang, B., Kim, J. H., Eisenman, L. T., & Killian, D. J. (1995). Quality of life in applied research: A review and analysis of empirical measures. American Journal on Mental Retardation, 99, 623-641.

Hughey, J. B., & Bardo, J. W. (1987). Social psychological dimensions of community satisfaction and quality of life: Some obtained relations. Psychological Reports, 61, 239-246.

Katzner, D. W. (1979). Choice and the quality of life. Beverly Hills, CA: Sage Library of Social Research.

Knapczyk, D. R., & Rodes, P. G. (1996). Teaching social competence: A practical approach for improving social skills in students at-risk. Pacific Grove, CA: Brooks/Cole.

Landesman, S. (1986). Quality of life and personal life satisfaction: Definition and measurement issues. Mental Retardation, 24, 141-143.

Lehman, A. F., & Burns, B. J. (1990). Severe mental illness in the community. In B. Spiker (Ed.), Quality of life assessments in clinical trials (pp. 357-366). New York: Raven Press.

Milbraith, L. W. (1982). A conceptualization and research strategy for the study of ecological aspects of the quality of life. Social Indicators Research, 10, 133-157.

Murrell, S. A., & Norris, F. H. (1983). Quality of life as the criterion for need assessment and community psychology. Journal of Community Psychology, 11, 88-97.

O'Connor, G. (1983). Social support of mentally retarded persons. Mental Retardation, 5, 187-196.

Ramund, B., & Stensman, R. (1988). Quality of life and evaluation of functions among people with severely impaired mobility and non-disabled controls. _Scandinavian Journal of Psychology, 29_, 137-144.

Robertson, I., Richardson, A. M., & Youngson, S. C. (1984). Social skills training with mentally handicapped people: A review. _British Journal of Clinical Psychology, 23_, 241-264.

Schalock, R. L. (1990a). _Quality of life: Perspectives and issues_. Washington, DC: American Association on Mental Retardation.

Schalock, R. L. (1990b). Attempts to conceptualize and measure quality of life. In R. L. Schalock (Ed.), _Quality of life: Perspectives and issues_ (pp. 141-148). Washington, DC: American Association on Mental Retardation.

Schalock, R. L., Keith, K. D., Hoffman, K., & Karan, O. C. (1989). Quality of life: Its measurement and use. _Mental Retardation, 27_, 25-31.

Schneider, M. (1976). The "quality of life" and social indicators research. _Public Administration Review, 36_, 297-305.

Stark, J. A., & Goldsbury, T. (1990). Quality of life from childhood to adulthood. In R. L. Schalock (Ed.), _Quality of life: Perspectives and issues_ (pp. 71-83). Washington, DC: American Association on Mental Retardation.

Stokes, T. F., & Osnes, P. G. (1986). Generalizing children's social behavior. In P. S. Strain, M. J. Guralnick, & H. M. Walker (Eds.), _Children's social behavior: Development, assessment, and modification_ (pp. 407-443). Orlando, FL:

Academic Press.

Storey, K. (1993). A proposal for assessing integration. Education and Training in Mental Retardation, 28, 279-287.

Strain, P. S., Storey, K., & Smith, D. J. (1991). Quality of life outcomes for young children with disabilities: Legislative and service delivery implications. Early Education and Development, 2, 40-53.

Sylvester, C. (1989). Quality assurance and quality of life: Accounting for the good and healthy life. Therapeutic Recreation Journal, 23, 7-22.

Tantam, D. (1988). Quality of life and the chronically mentally ill. The International Journal of Social Psychiatry, 34, 243-247.

Zautra, A. (1983). The measurement of quality in community life: Introduction to the special issue. Journal of Community Psychology, 11, 83-87.

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Running Head: NATURAL SUPPORTS

The Cumulative Effect of Natural Support Strategies and Social Skills Instruction on the Integration of a Worker in Supported Employment

Keith Storey and Jennifer T. Garff

Chapman University

Abstract

We examine the effectiveness of a natural support strategy, co-worker instruction with social skills instruction, on increasing the integration of worker with developmental disabilities in a supported employment setting. The intervention consisted of three phases: 1) teaching a non-disabled co-worker instructional skills and having the non-disabled co-worker then teach the worker with a disability a new job task, 2) having the non-disabled co-worker tell both other non-disabled co-workers and the participant that it was alright for the participant to interact at the bar area where most interactions occurred, and 3) teaching a series of question-asking conversational exchanges appropriate to conversational context to the participant. Integration data were collected using direct observation, social validation, and global measures. Results demonstrate that the intervention strategy increased the social integration of the participant.

The Cumulative Effect of Natural Support Strategies and Social Skills Instruction on the Integration of a Worker in Supported Employment

Obtaining the outcome of social integration of employees with disabilities has been difficult to achieve. Research indicates that many employees with disabilities are physically integrated yet socially segregated in supported employment settings (Storey & Horner, 1991). Strategies such as social skills instruction, natural supports, circle of friends, problem solving, and self-management have all been used with varying degrees of success and the challenge remains of how to increase the integration of an individual in a specific job site (Storey & Lengyel, 1992).

Displaying appropriate social skills has been an important factor in the successful employment and integration of persons with disabilities (Elksnin, Elksnin, & Sabornie, 1994). Social skills instruction is a viable teaching strategy not only because of the large body of empirically validated instructional methods, but also because of the nature of integrated work environments. Role playing and other social skills instruction allows for training to be conducted in secluded areas and results have generalized to the non-trained environments where non-disabled workers are present (Breen, Haring, Pitts-Conway, & Gaylord-Ross, 1985; Storey, Lengyel, & Pruszynski, in press).

Natural supports have also been advocated as a method of increasing integration in supported employment settings (Hughes, Rusch, & Curl, 1990; Rogan, Hagner, & Murphy, 1993). One example of co-worker involvement is that of Park, Simon, Tappe, Wozniak, Johnson, and Gaylord-Ross (1991) who implemented a co-worker advocacy program and social skills instruction to increase the integration of five employees with mild disabilities. However, there has been little empirical research evaluating the effectiveness of natural supports for increasing integration in the workplace (Storey & Certo, 1996; Test & Wood, in press).

The purpose of this research was to assess whether teaching non-disabled co-workers specific instructional strategies would increase the integration of an employee with disabilities? Multiple measures of integration (direct observation and global ratings) were used in expanding assessment concerning the effectiveness of the intervention procedures to increase integration in a supported employment setting.

Method

Participant

Cassie was a 27-year-old woman with a developmental disability. Both Tagalog and English were spoken in her home though English was Cassie's primary language. Cassie was referred to special education in kindergarten with an initial placement in a severe language handicap classroom. Her labels included emotional and mental disturbances, moderate mental retardation, and sensory integration problems. After graduating from high school, Cassie lived in a board and care facility for four years and since then she has lived at a residential group home. For three years she worked at a work activity program. For 13 months before the start of the study she had been employed at a restaurant where her job duties were to set and bus tables and sort silverware.

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Setting Conditions

All data collection and intervention took place at the restaurant where Cassie was employed. During baseline, Cassie worked at her bussing station toward the back of the restaurant and throughout the restaurant setting and bussing tables. Her job coach made a visit approximately once a month.

Dependent Measures

Interaction context measures. Data collection involved direct observation of the frequency and type of interaction (initiating, continuing, terminating), where the interaction occurred, with whom the interaction occurred, the topic of the conversation, was it the appropriate social occasion, the right time, the task in which the person was engaged, and was it with an appropriate person (Storey et al., in press). Interaction context assessment occurred for 20 minutes during work times. These data were collected using a frequency recording system. Operational definitions and scoring information are available from the first author upon request.

Social validation. Social validation involved a) assessing the topics of conversation (i.e., sports, music, food, etc.) in which co-workers preferred to engage, b) normative comparisons of social interactions, and c) evaluating the social importance of effects by having the job coach rate the Cassies' social interaction effectiveness and integration before and after intervention using a 10-point Likert-type scale. The job coach was not shown the rating form from before the intervention started when responding to the post-intervention questions. For the normative comparisons, eight non-disabled co-workers were observed for one twenty-minute observation session using the interaction context measures data collection system.

Vocational Integration Index. The Vocational Integration Index (Parent, Kregel, Wehman, & Metzler, 1991) was completed by the job coach at the end of each phase of the study in order to assess the global integration of Cassie at her work site and to compare from baseline to the end of the maintenance phase. This was completed by the job coach because she was the most knowledgeable concerning the questions. The Vocational Integration Index consists of four indicators (company, work, employee, and benefit) and the employee indicators were the most relevant for this study. The employee benefit indicators cover the areas of following a similar work schedule, interactions with co-workers, and participation in social activities during work and outside of work times.

Experimental Design

An A-B1-B2-B3 case study design was used to evaluate the impact of the intervention package. The four phases of the design are described below.

Baseline (A). Direct observation of social interaction data utilizing the three measurement systems were taken during Cassie's initial work time. This was approximately 30 minutes after she arrived at work and had completed filing out her time card, getting her bussing station stocked with silverware and napkins, and checking tables and chairs for crumbs. No changes in routine occurred and no instructions to Cassie or co-workers were provided.

Intervention. The intervention consisted of four phases: 1) teaching a non-disabled co-worker instructional skills, 2) having the non-disabled co-worker then teach Cassie a new job task, 3) having the non-disabled co-worker encourage other co-workers to interact with Cassie, and 4) teaching social interaction skills to Cassie.

Teaching co-workers: One non-disabled co-worker (who was a waitress and also the shift supervisor) was taught how to use instructional tactics of verbal instructions, modeling, practicing the step with corrective feedback, praise, and quality-control checking (Likins, Salzberg, Stowitschek, Lignugaris/Kraft, & Curl, 1989). The co-worker was taught the skills during 20 minute daily training sessions with the a researcher. The researcher listed the steps within the job task and proceeded to use the instructional tactics to model teaching the job task to the co-worker. After modeling the teaching of the job task, the co-worker then "taught" the job task to the researcher using the instructional procedures in the "tell-show-watch-coach" teaching sequence. These were the techniques that had just been modeled to her. While the co-worker was teaching the job task to the researcher, the research provided feedback to her. When the co-worker was effectively using the instructional tactics to teach each step with the job task, the co-worker started training Cassie on the same job task. The researcher observed this training and continued to provide feedback.

Intervention 1: Co-worker teaching Cassie (B1): The training sequence involved the co-worker providing a verbal description, modeling a particular step, having Cassie practice the step, providing corrective feedback as necessary, and praising a correct response. Researchers were present to answer co-worker questions and to provide feedback to the co-worker.

Intervention 2 (B2): The training sequence involved the researcher talking to the non-disabled co-worker who had provided training in Intervention 1 about the importance of involving Cassie in social interactions during slower work times. The co-worker then talked to Cassie about it being okay for her to spend more time over in the bar area which was where most of the socialization occurred among the employees. She told Cassie that she wanted her to be more a part of conversations and that all the co-workers enjoyed talking with her. Next, the co-worker talked to each of the co-workers about the importance of including Cassie in their social interactions. She suggested to the co-workers that when Cassie passed by the bar area that they make a comment that would promote her participation in a current conversation. If they were not already engaged in conversation, the co-worker suggest that they ask Cassie a question about how she is doing or about something she enjoys. The researcher and co-worker did not provide any further instruction to either Cassie or the co-workers after this one day.

Intervention 3: Question asking instruction (B3): This intervention involved role playing a series of question-asking conversational exchanges appropriate to conversational context (Chadsey-Rusch, Karlan, Riva, & Rusch, 1984; Storey et al., in press). Question-asking was taught by: (a) giving a rationale for asking questions, (b) modeling examples of different questions using socially validated topics, (c) practicing asking questions by role-playing and corrective feedback, (d) prompting question asking during training conversations, and (e) reinforcement of appropriate behavior. Cassie was instructed to ask initiating or expansion questions to co-workers or to make a response statement. Initially, initiation behaviors and topics of conversation were modeled. During instruction, the trainer waited 30 seconds for the participant to initiate an interaction. If an interaction was not initiated in that time, a general cue (i.e., "What do we talk about?") was given. Expansion training (Haring, Roger, Lee, Breen, & Gaylord-Ross, 1986) was also used. This training involved producing a response which expanded upon the statement or interaction which just occurred. Using socially validated topics during role playing sessions, Cassie was prompted to ask questions which would initiate a new topic or expand the current topic. Conversational topics were selected by having workers in the job environment fill out a questionnaire to determine topics of conversation they prefer to have with their co-workers. Instruction occurred when Cassie first arrived in the morning which was a half-hour before data collection occurred.

Maintenance: Maintenance occurred over a two-month period following Intervention 3. During the maintenance period, no further instruction occurred with Cassie or with any of her co-workers.

Interobserver Agreement

Interobserver agreement was established by having a second observer record data in the same manner as the primary observer and occurred across all phases of the study. Interobserver agreement was calculated using a point-by-point agreement ratio (Kazdin, 1982). The interobserver agreement for interaction context measures for work times occurred on 32 (19%) of the 168 observation sessions with a mean of 93% and a range of 81-100%.

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Results

Figure 1 represents the frequency of Cassie's interactions with non-disabled co-workers during the observation times. Her interactions with non-disabled co-workers increased from a mean per session of 5.3 (range 2-8) during baseline to 6.3 (range 2-12) during Intervention 1, to 10.7 (range 2-18) during Intervention 2, and 9.5 (range 3-19) during Intervention 3. During maintenance there was a mean per session of 8.9 with a range of 2 to 16. Her non-disabled co-workers had a mean of 13.5 interactions per session with a range of 10-19.

Figure 2 displays the frequency of initiations that Cassie had towards non-disabled co-workers. Her initiations with non-disabled co-workers went from a mean per session of 0.8 (range 0-3) during baseline to 0.5 (range 0-2) during Intervention 1, to 0.6 (range 0-2) during Intervention 2, and 3.0 (range 1-6) during Intervention 3. During maintenance she had a mean per session of 3.2 with a range of 1 to 7. The normative mean was 3.3 initiations per session with a range of 1-6.

The frequency of topics during observation times are displayed in Figure 3. Cassie showed an increase from four different topics per session during baseline to six during Intervention 1, twelve during Intervention 2, ten during Intervention 3, and eleven during maintenance. The normative comparison group had eight different topics. Cassie's biggest increases over the baseline mean were for the topic of work with some increase in the areas of family/personal and recreation. All of her topic levels were within the normative range with the exception of the work topic.

Table 1 displays the mean (and range) percentages of initiations, receiving initiations, continuations, and terminations that were appropriate and occurred at the right time for Cassie as well as the mean number of people present during each interaction.
These data indicate that Cassie had a mean of 96% or better on appropriate interactions (initiations, receiving initiations, continuations, and terminations) and occurrence at the right time during all phases of the study. The number of people present remained consistent across all phases of the study.

The Vocational Integration Index score for Cassie is presented in Figure 4. The company, work area, and benefit indicators scores demonstrated no change. The employee indicator, which was the most relevant for this study, showed an increase from 21 during the baseline to 32 at the end of the study.

Cassie's job coach rated her frequency of interactions with non-disabled co-workers as higher following the intervention than during baseline (questions 1-2) as well as her social skills (question 3). Her integration rating changed from 8 to 10 (question 4). The job coach rated the intervention procedures as being very effective in increasing Cassie's integration (question 5). These data are presented in Table 2.

Discussion

Perhaps the most important and the most elusive of the outcomes of supported employment is social integration (Gaylord-Ross, Salzberg, Curl, & Storey, 1991). This study adds empirical support for the effectiveness of social skills instruction in addition to natural support strategies in increasing integration in supported employment settings. It is important to emphasize that the use of natural supports and other strategies for increasing

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integration is not an either/or proposition. A variety of support strategies may be built around a supported employee in order to increase their integration with non-disabled co-workers. In this study, we found that the initial co-worker instruction did not adequately increase Cassie's social interactions with non-disabled co-workers. Cassie would often pass by the bar area where the co-workers socialized but she seldom initiated interactions during Intervention 1 and if co-workers did not initiate towards her then no interaction occurred. By directly teaching Cassie social initiation skills, she was less dependent upon the initiations of others for social interactions.

It is vital that multiple measures of integration be used (Chadsey-Rusch, 1992). Previous research has generally only considered one dependent variable in assessing integration. This lack of multiple measures is inadequate due to the complexity and multidimensional aspects concerning integration (Storey, 1993). It is not clear at this point what measures are most important and how measures might (and might not) correlate with each other. In this study, all of the dependent variables (e.g., direct observation, social validation, global ratings) indicated an increase in Cassie's social integration at her job site.

Limitations of this study include the fact that there was only one participant and it was not a controlled research design which makes generalization of the findings difficult. More research using a variety of research designs are needed to examine the effectiveness of natural supports for increasing integration. Also, no formal analysis of how Cassie learned previous tasks was used as an indicator for how co-workers would conduct their instructional strategies. In addition, while the combined effects of the intervention procedures was effective, Cassie continued to miss opportunities to initiate towards non-disabled co-workers.

It is not clear as to why Cassie did not initiate during those times or what intervention procedure could have helped her to capitalize upon those opportunities. Finally, there was no assessment of whether Cassie, her support team, or co-workers would have measured social integration in a different manner that the methods used in this study.

Ultimately, without empirical validation of effective integration strategies it is likely that supported employees will continue to be socially segregated in the work place. Natural supports appears to be an effective strategy but as the results of this study indicate, it is not an "either/or" proposition between natural support and other strategies for increasing integration. Supports must be built around individuals and meet each persons unique needs.

References

Breen, C., Haring, T., Pitts-Conway, V., & Gaylord-Ross, R. (1985). The training and generalization of social interaction during breaktime at two job sites in the natural environment. Journal of the Association for Persons with Severe Handicaps, 10, 41-50.

Chadsey-Rusch, J. (1992). Toward defining and measuring social skills in employment settings. American Journal on Mental Retardation, 96, 405-418.

Chadsey-Rusch, J., Karlan, G. R., Riva, M., & Rusch, F. R. (1984). Competitive employment: Teaching conversation skills to adults who are mentally retarded. Mental Retardation, 22, 218-225.

Elksnin, L. K., Elksnin, N., & Sabornie, E. J. (1994). Job-related social skills instruction of adolescents with mild mental retardation. Journal for Vocational Special Needs Education, 17, 1-7.

Gaylord-Ross, R., Salzberg, C., Curl, R., & Storey, K. (1991). Social and vocational factors in the employment of persons with developmental disabilities. In B. Remington (Ed.), The challenge of severe mental handicap: A behaviour analytic approach (pp. 317-342). New York, NY: John Wiley & Sons.

Haring, T. G., Roger, B., Lee, M., Breen, C., & Gaylord-Ross, R. (1986). Teaching social language to moderately handicapped students. Journal of Applied Behavior Analysis, 19, 159-171.

Hughes, C., Rusch, F. R., & Curl, R. M. (1990). Extending individual competence, developing natural support, and promoting social acceptance. In F. R. Rusch (Ed.), Supported employment: Models, methods, and issues (pp. 181-197). Sycamore, IL:

Sycamore Publishing Company.

Kazdin, A. E. (1982). Single-case research designs: Methods for clinical and applied settings. New York: Oxford University Press.

Likins, M., Salzberg, C. L., Stowitschek, J. J., Lignugaris/Kraft, B., & Curl, R. (1989). Co-worker implemented job training: The use of coincidental training and quality-control checking procedures on the food preparation skills of employees with mental retardation. Journal of Applied Behavior Analysis, 22, 381-393.

Parent, W., Kregel, J., Wehman, P., & Metzler, H. (1991). Measuring the social integration of supported employment workers. Journal of Vocational Rehabilitation, 1, 35-49.

Park, H. S., Simon, M., Tappe, P., Wozniak, T., Johnson, B., & Gaylord-Ross, R. (1991). Effects of a coworker advocacy program and social skills training on the social interaction of employees with mild disabilities. Journal of Vocational Rehabilitation, 1, 73-90.

Rogan, P., Hanger, D., & Murphy, S. (1993). Natural supports: Reconceptualizing job coach roles. Journal of the Association for Persons with Severe Handicaps, 18, 275-281.

Storey, K. (1993). A proposal for assessing integration. Education and Training in Mental Retardation, 28, 279-287.

Storey, K., & Certo, N. J. (1996). Natural supports for increasing integration in the workplace for people with disabilities: A review of the literature and guidelines for implementation. Rehabilitation Counseling Bulletin, 40, 62-76.

Storey, K., & Horner, R. H. (1991). Social interactions in three supported employment options: A comparative analysis. Journal of Applied Behavior Analysis, 24 349-360.

Storey, K., & Lengyel, L. (1992). Strategies for increasing interactions in supported employment settings: A review. Journal of Vocational Rehabilitation, 2, 46-57.

Storey, K., Lengyel, L., & Pruszynski, B. (in press). Assessing the effectiveness and measuring the complexity of two conversational instructional procedures in supported employment contexts. Journal of Vocational Rehabilitation.

Test, D. W., & Wood, W. M. (in press). Natural supports in the workplace: The jury is still out. Journal of the Association for Persons with Severe Handicaps.

Table 1

Interaction Context Measures Mean (Range) Scores

	Percent Appropriate	Percent Right Time	Job Coach	NDCW[1]	Other
Initiations					
B[2]	96	100	0	0.8 (0-3)	0.3 (0-2)
I1[3]	100	100	0	0.6 (0-2)	0.8 (0-4)
I2[4]	100	100	0	0.6 (0-2)	1.5 (0-8)
I3[5]	100	100	0.1 (0-1)	2.8 (1-6)	1.1 (0-4)
M[6]	100	100	0.1 (0-1)	3.2 (1-7)	1.1 (0-4)
Receiving Initiations					
B	97	100	0	2.6 (1-5)	1.1 (0-3)
I1	98	100	0	3.6 (1-8)	1.1 (0-6)
I2	100	100	0	5.2 (1-10)	0.4 (0-1)
I3	100	100	0	2.3 (0-6)	0.3 (0-2)
M	100	100	0	1.3 (0-4)	0.3 (0-2)
Continuations					
B	100	100	0	1.7 (0-3)	0.6 (0-3)
I1	100	100	0	2.1 (0-4)	1.0 (0-6)
I2	100	100	0	4.7 (1-7)	0.6 (0-4)
I3	100	100	0.1 (0-1)	3.5 (1-8)	0.5 (0-3)
M	100	100	0.1 (0-1)	3.7 (1-8)	0.7 (0-3)

Terminations					
B	100	100	0	0.2 (0-1)	0.1 (0-1)
I1	100	100	0	0.1 (0-1)	0.2 (0-1)
I2	100	100	0	0.8 (0-2)	0
I3	100	100	0.1 (0-1)	1.0 (0-2)	0
M	100	100	0	0.8 (0-3)	0.1 (0-1)
Number of People Present					
B			0	1.3 (1-4)	1.5 (1-5)
I1			0	1.9 (1-8)	2.3 (1-6)
I2			0	2.1 (1-6)	2.4 (1-5)
I3			0	2.1 (1-7)	2.6 (1-5)
M			0	2.0 (1-7)	2.0 (1-4)

1. NDCW = Non-Disabled Co-Workers

2. B = Baseline

3. I1 = Intervention 1

4. I2 = Intervention 2

5. I3 = Intervention 3

6. M = Maintenance

Table 2

Job Coach Ratings

1. How often does this person interact with non-disabled co-workers?

	Very Rarely	1	2	3	4	5	6	7	8	9	10	Very Often
Pre							6					
Post											10	

2. How often does this person talk about non-work topics with non-disabled co-workers?

	Very Rarely	1	2	3	4	5	6	7	8	9	10	Very Often
Pre					4							
Post											10	

3. Overall, how would you rate this person's social skills?

	Very Poor	1	2	3	4	5	6	7	8	9	10	Very Good
Pre							6					
Post									8			

4. How integrated with non-disabled co-workers do you think this person is on the job site?

	Very Segregated	1	2	3	4	5	6	7	8	9	10	Very Integrated
Pre									8			
Post											10	

5. How effective do you think the intervention procedures have been in increasing this person's social integration with non-disabled co-workers?

	Not Effective	1	2	3	4	5	6	7	8	9	10	Very Effective
Post											10	

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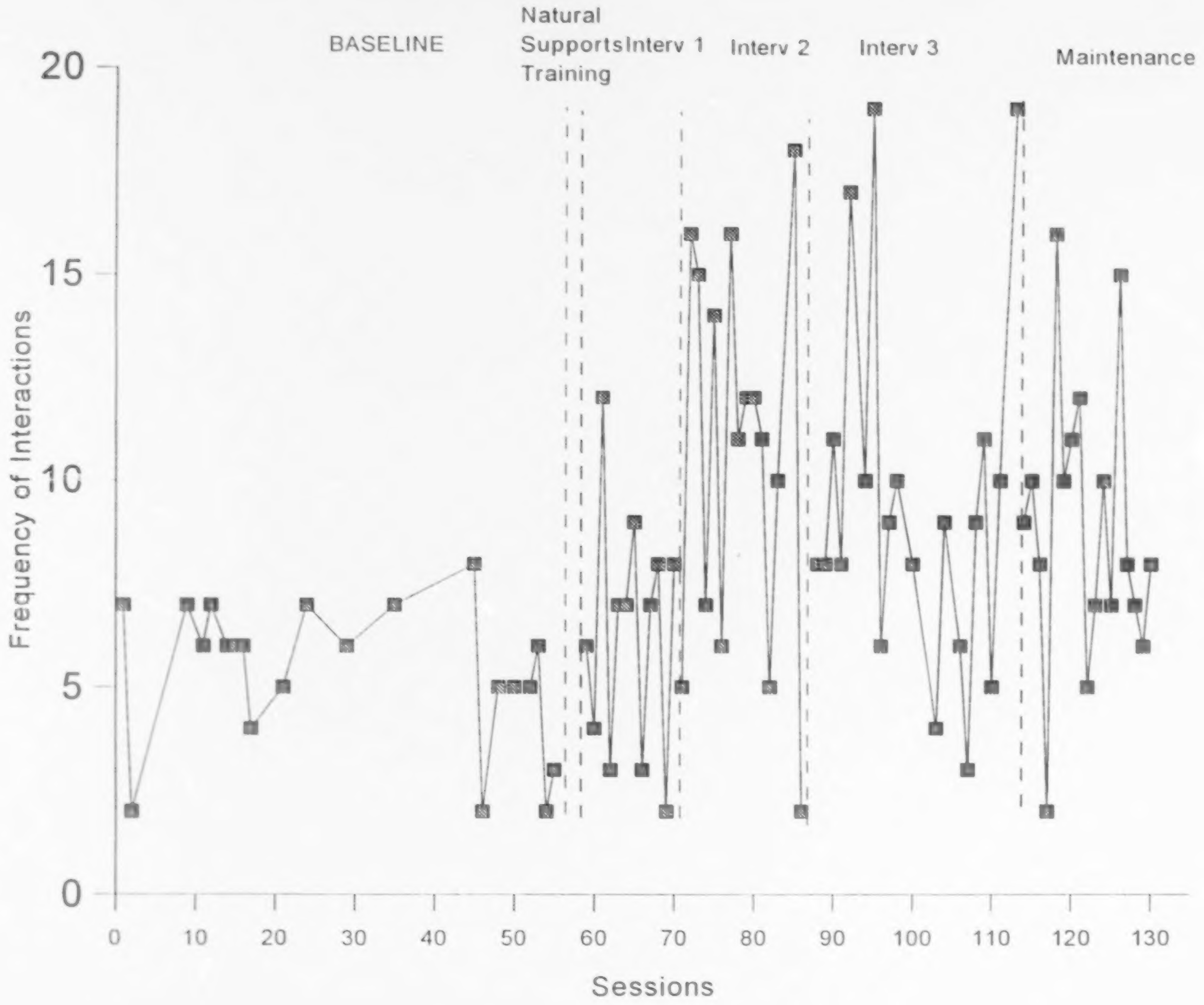
Figure Caption

Figure 1. The frequency of Cassie's interactions with non-disabled co-workers during the observation times.



BASELINE
Natural Supports Training
Interv 1
Interv 2
Interv 3
Maintenance
Frequency of Interactions
0
5
10
15
20
Sessions
0
10
20
30
40
50
60
70
80
90
100
110
120
130

Figure Caption

Figure 2. The frequency of initiations that Cassie had towards non-disabled co-workers.

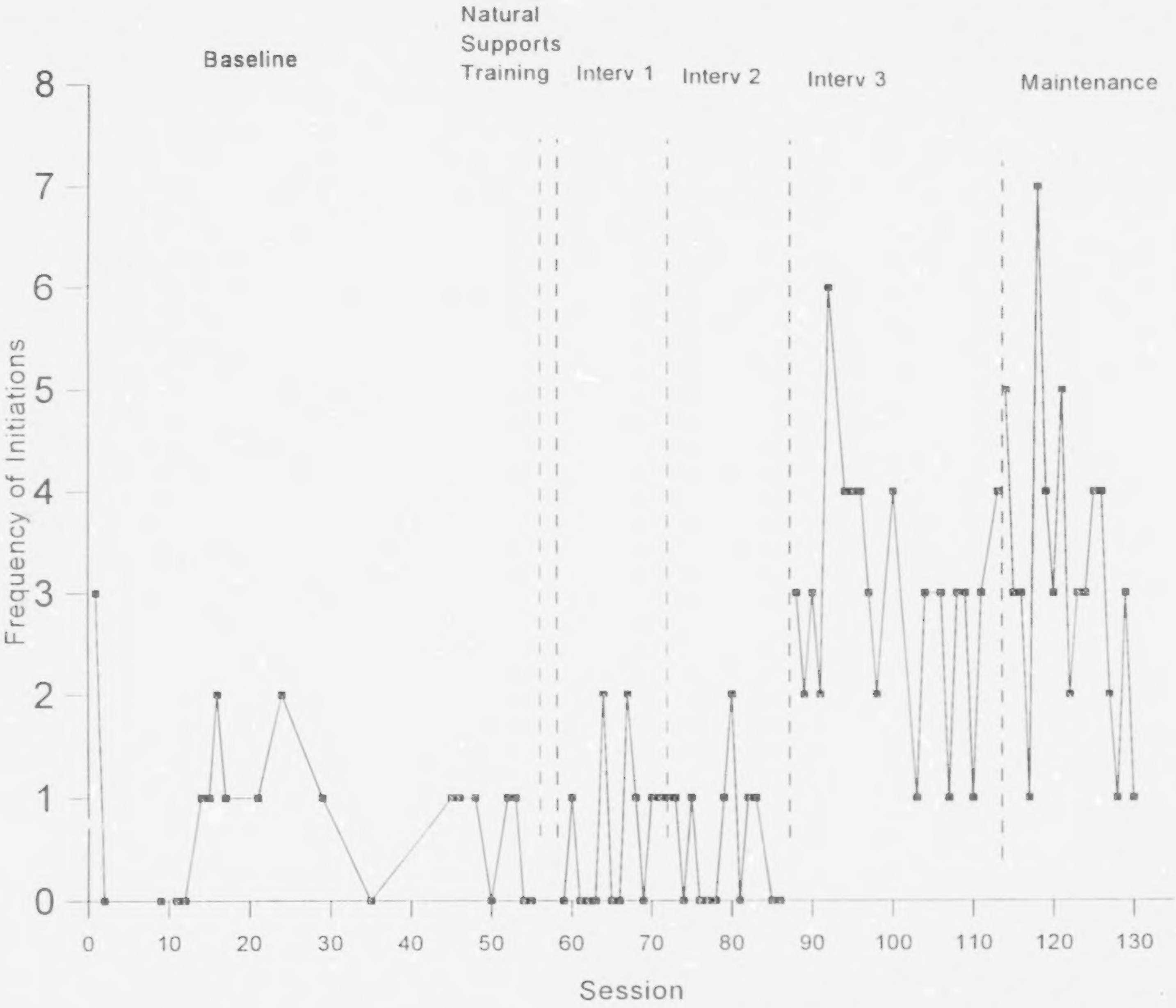
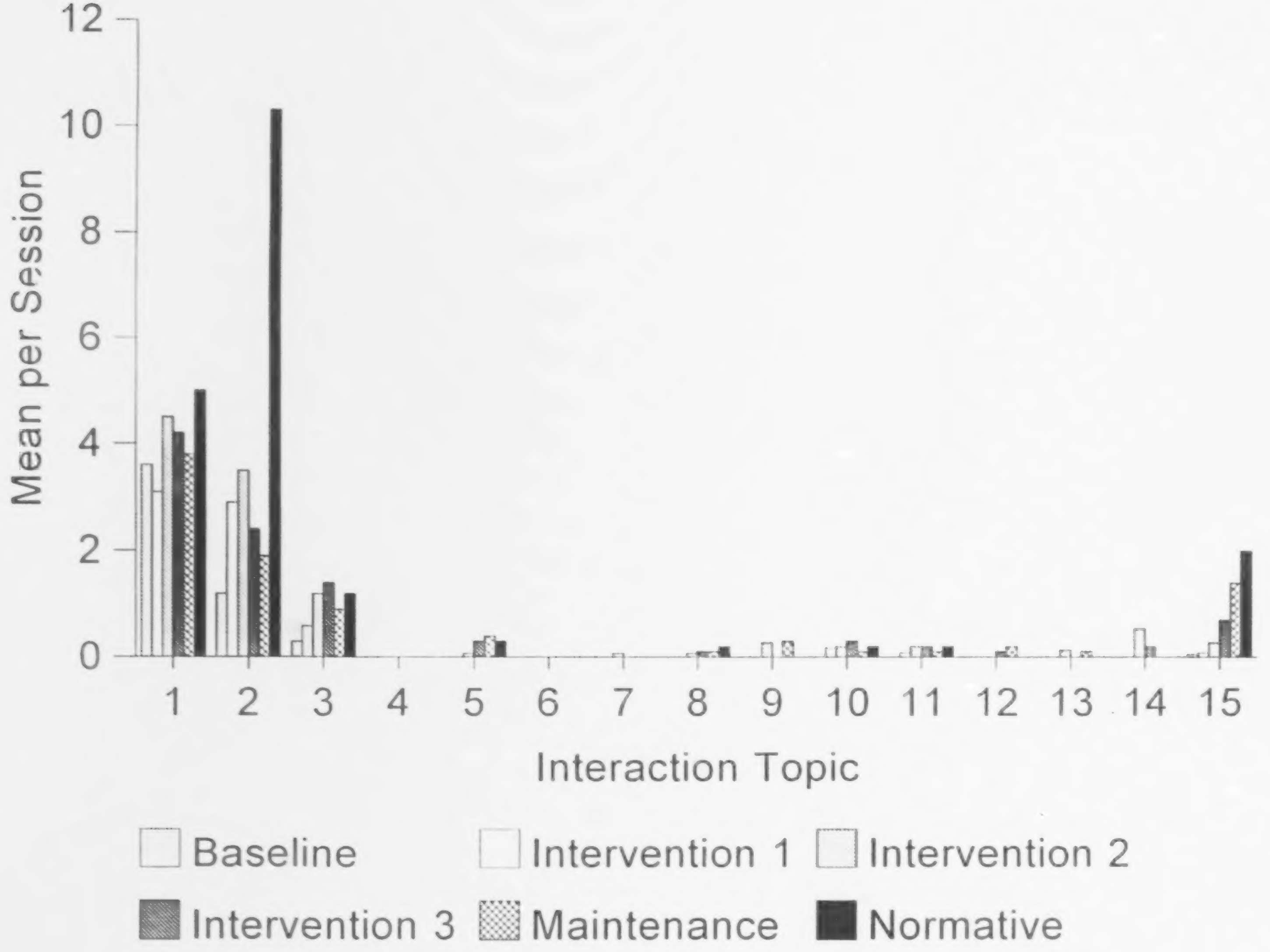

Baseline
Natural Supports Training
Interv 1
Interv 2
Interv 3
Maintenance
Frequency of Initiations
8
7
6
5
4
3
2
1
0
0
10
20
30
40
50
60
70
80
90
100
110
120
130
Session

Figure Caption

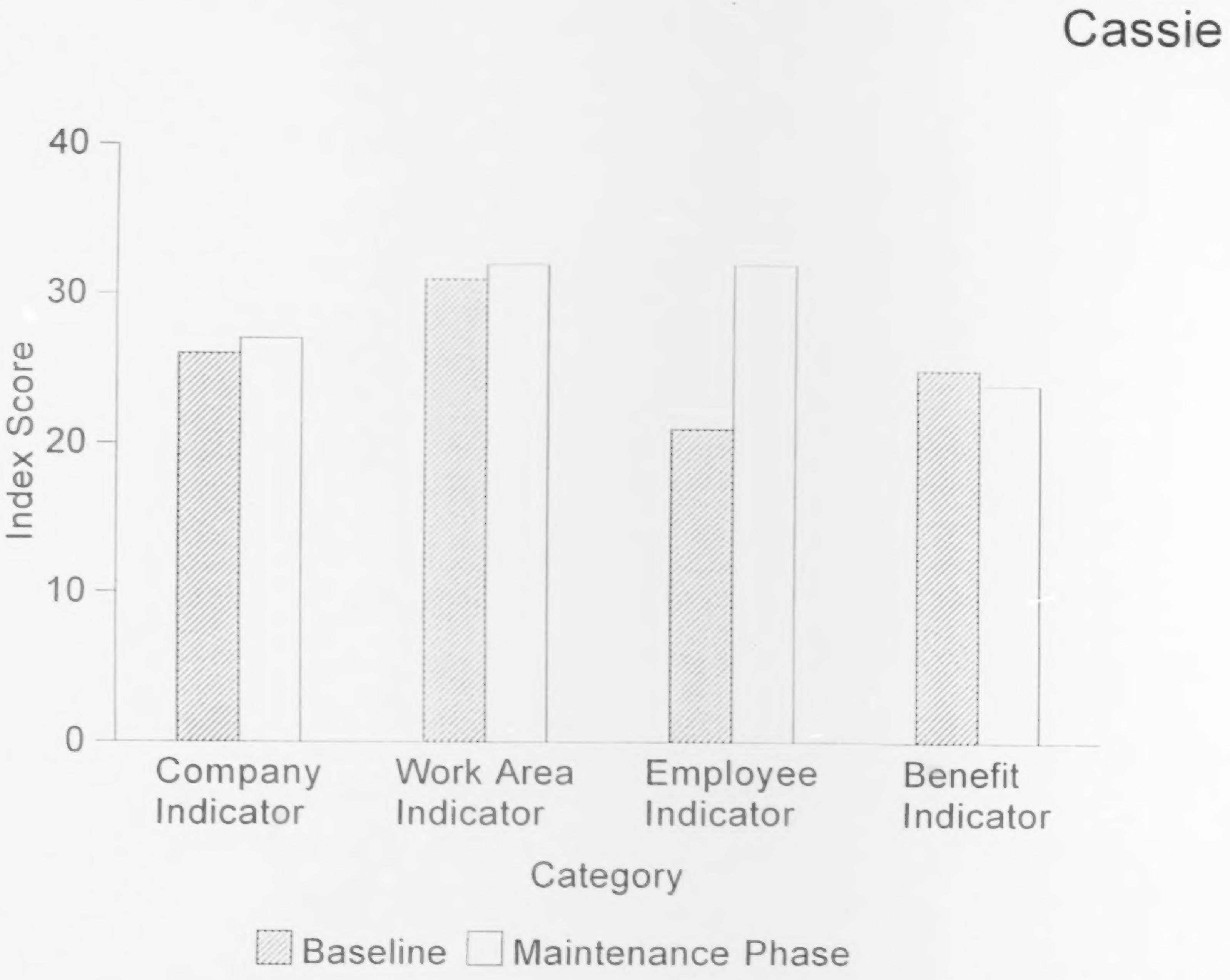
Figure 3. The mean frequency of topics during observation times during baseline, Intervention 1, Intervention 2, Intervention 3, and maintenance as well as the normative comparison data.



1=general/social 2=work 3=family/personal 4=sports 5=recreation 6=hobbies
7=pets 8=shopping 9=exercise 10=eating/cooking 11=vacation/holiday
12=transportation 13=music 14=other 15=unknown

Figure Caption

Figure 4. Vocational Integration Index mean scores for Cassie during baseline and maintenance phases.


Cassie
40
30
20
10
0
Index Score
Company Indicator
Work Area Indicator
Employee Indicator
Benefit Indicator
Category
▨ Baseline
☐ Maintenance Phase

Author Notes

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Running Head: NATURAL SUPPORTS

The Effect of Co-Worker Instruction on the Integration of Youth in Transition in Competitive Employment

Keith Storey and Jennifer T. Garff
Chapman University

Abstract

We examine the effectiveness of a natural support strategy, co-worker instruction, on increasing the integration of youth with disabilities in transition in a competitive employment setting. The intervention consisted of two phases, teaching non-disabled co-workers instructional skills and having the non-disabled co-workers then teach the students with disabilities a new job task. Non-disabled co-workers were taught instructional procedures of verbal instructions, modeling, practicing the step with corrective feedback, praise, and quality control checking. Integration data were collected using direct observation, social validation, and global measures. Results demonstrate that the intervention strategy increased the social integration of the students with disabilities.

The Effect of Co-Worker Instruction on the Integration of Youth in Transition in Competitive Employment

One of the most important outcomes in transition and employment for youths with disabilities is social integration (Blalock & Patton, 1996; Sale, Metzler, Everson, & Moon, 1991). However, methods of enhancing social integration in the workplace have not been well investigated and are not understood clearly (Storey, Ezell, & Lengyel, 1995; Storey & Lengyel, 1992). Research indicates that although persons in competitive employment may be physically integrated, they are often socially segregated (Storey & Horner, 1991).

One method that has been promoted for increasing social integration in the workplace is the use of natural supports (Storey & Certo, 1996). Natural supports for workers with disabilities involves using co-workers, supervisors, and other supports intrinsic to the job setting to facilitate job skill acquisition, maintenance, and integration (Hughes, Rusch, & Curl, 1990; Nisbet, 1992). It has been suggested, though not directly empirically validated, that the presence of job coaches and other human service professionals inhibits interactions between the worker with a disability and others (Nisbet & Hagner, 1988). It has been implied that co-workers, supervisors, and others will be more likely to interact with the job coach than the worker with a disability for matters such as providing instruction and in social interactions. Thus, the presence of the job coach might inadvertently impede integration.

Previous research has reported five different ways in which co-workers have been involved in competitive employment (Rusch & Minch, 1988). These are: (a) validating instructional strategies, (b) collecting subjective evaluations, (c) implementing training procedures, (d) collecting social comparison information, and (e) withdrawing training procedures in an effort to maintain target employment behavior(s). Shafer (1986) recommends training co-workers without disabilities to serve as advocates, observers, and trainers of employees with disabilities. Specifically teaching co-workers how to interact with competitive employees by having co-workers provide instruction on job tasks is one form of natural support (Nisbet & Hagner, 1988). For instance, Likins, Salzberg, Stowitschek, Lignugaris/Kraft, and Curl (1989) used co-workers to provide salad-making skills to three women with developmental disabilities. The women were exposed to five experimental conditions: (a) baseline, (b) coincidental training, (c) coincidental training plus quality-control checking, (d) 2-day maintenance checks, and (e) weekly maintenance checks. The results of the training suggest that the use of coincidental training procedures by co-workers increased the salad-making skills of the three participants and that the co-workers could provide this training without substantially decreasing their own productivity.

However, no research to date has documented the effect of co-worker instruction on integration in competitive employment settings for youth in transition. Beyond the issue of the success of such a natural support strategy, a question remains about the effect that training non-disabled co-workers to teach individuals with disabilities will have on different dimensions of integration.

The purpose of this research was to assess whether teaching non-disabled co-workers instructional strategies would increase the integration of youth with learning disabilities? Multiple measures of integration (direct observation and global ratings) were used in expanding assessment concerning the effectiveness of the intervention procedures to increase integration in competitive employment settings.

Method

Participants

Four transition aged high school students with disabilities participated in this study. Andrew was a 16-year-old student. He had been receiving special education services since the fifth grade with a primary diagnosis of learning disabled. He had many behavioral referrals due to threats, aggression, and weapons at school. His Wide Range Achievement Test (Wilkinson, 1993) scores from the previous year placed his below third grade in reading, below third grade in spelling, and beginning seventh grade in arithmetic. Andrew was fired from the placement after session fifty-five due to poor attendance.

Karl was 17-years-old at the start of the study. He had been placed in classes for students with Severe Emotional Disturbance since the age of 10. Previous to that the had been in classes for students with severe language delays, learning handicaps, and severe handicaps. He has had many absences in school due to asthma. He was labeled as having severe emotional disturbance with some motor control and visual-motor functioning difficulties and learning difficulties. His WRAT III scores from the previous school year placed him at the 50th percentile for reading, the 96th percentile for spelling, and the 5th percentile for arithmetic.

Larry was an 18-year-old student who had been receiving special education services for the previous ten years. Larry was found to have significant language delays in both Spanish (his native language) and English. He was labelled as learning disabled with a language processing disorder. His WRAT scores in both reading and spelling put him at below the third grade level and in arithmetic at the beginning third grade level.

Sarah was a 17-year-old student and had been receiving special education services in language disabilities and learning handicapped classes for 10 years. Her WRAT (Level II) placed her overall reading ability at the beginning of fifth grade, her spelling at the beginning of fifth grade, and her arithmetic at the beginning of fifth grade. Her most current label was learning disabled with slow motor production.

Setting Conditions

All data collection and intervention took place at the office of the state Department of Social Services. During baseline, all four students worked in either one room with two of their co-students with disabilities and the job coach, or in an attached room by themselves. The two rooms they worked in were in a corner on the first level of the building. Their job task was to put together social service client packets which were then distributed to various social service co-workers. During intervention, the data collection took place in four other units in the building. Andrew worked in an upstairs unit doing computer work and copying. Lenny worked in an upstairs unit doing computer work and copying. Karl worked in an upstairs unit doing form processing. Sarah worked on the main level in the reception area sorting mail.

Dependent Measures

Interaction context measures. Data collection involved direct observation of the frequency and type of interaction (initiating, continuing, terminating), where the interaction occurred, with whom the interaction occurred, the topic of the conversation, was it the appropriate social occasion, the right time, the task in which the person was engaged, and was it with an appropriate person (Storey, Lengyel, & Pruszynski, in press). Interaction context assessment occurred for twenty minutes during work times. These data were collected using a frequency recording system. Operational definitions and scoring information are available from the first author upon request.

Social Validation

Social validation involved a) normative comparisons of social interactions and b) evaluating the social importance of effects by having the job coach rate the students' social interaction effectiveness and integration before and after intervention using a 10-point Likert-type scale. The job coach was not shown the rating form from before the intervention started when responding to the post-intervention questions. For the normative comparisons, non-disabled co-workers (5 for Lenny, Karl, and Sarah and 6 for Andrew) from the unit where each student was being trained were observed for one twenty-minute observation session each using the interaction context measures data collection system.

Vocational Integration Index

The Vocational Integration Index (Parent, Kregel, Wehman, & Metzler, 1991) was completed by the job coach at the end of each phase of the study in order to assess the global integration of each employee at their work site and to compare across phases. This was completed by the job coach because she was the most knowledgeable concerning the questions. The Vocational Integration Index consists of four indicators (company, work, employee, and benefit) and the employee indicators were the most relevant for this study. The employee benefit indicators cover the areas of following a similar work schedule, interactions with co-workers, and participation in social activities during work and outside of work times.

Experimental Design

A multiple-probe across employees design was used to evaluate the impact of the intervention package. The three phases of the design are described below.

Baseline. Direct observation of social interaction data were taken during the students work times. No changes in routine occurred and no instructions to any of the participants, job coach, or co-workers were provided.

Intervention. The intervention consisted of two phases, teaching non-disabled co-workers instructional skills and having the non-disabled co-workers then teach the students with disabilities a new job task. During intervention, non-disabled co-workers were taught the instructional procedures (verbal instructions, modeling, practicing the step with corrective feedback, praise, and quality control checking). The co-workers were taught the skills during 20 minute daily training sessions with the researchers.

Teaching co-workers: Intervention procedures involved teaching non-disabled co-workers how to use a variety of instructional tactics. These tactics are known as the "Tell-Show-Watch-Coach" teaching sequence. These skills were taught to co-workers using sections of an instructional manual (Curl & Hall, 1990) that involved modeling, prompts, practice, and praise. With co-worker assistance, the researcher initially outlined all of the steps within the job task that was to be taught to the student. The researcher then modeled each step for the co-worker and had the co-worker follow the example. As the co-worker followed the researcher's model and completed each step, the researcher taught the skills of prompting and praise. The researcher also gave examples of corrective feedback, modeling what to say and do if the job task was not being completed satisfactorily. After going through all of these steps, the researcher had the co-worker teach the job task back to her, using the same procedures. As the co-workers went through this process with the researcher, the researcher would continue to give the co-worker feedback on his or her use of the procedures. When the co-worker felt comfortable with the steps of teaching the job task, the student was brought into the area to be trained.

Co-workers teaching students: The training sequence with the students involved the co-worker providing a verbal description, modeling a particular step, having the student practice the step, providing corrective feedback as necessary, and praising a correct response. The co-worker went through these procedures in the same way that he or she had when teaching the steps to the researcher. The co-worker went through each individual step within the job task initially and when the student was comfortable with teach step, the co-worker asked the student to go through the entire job task and provided feedback and praise. Researchers were present to answer co-worker questions and to provide feedback to the co-workers.

Interobserver Agreement

Interobserver agreement was established by having a second observer record data in the same manner as the primary observer and occurred across all phases of the study. Interobserver agreement was calculated using a point-by-point agreement ratio (Kazdin, 1982). The interobserver agreement for interaction context measures for work times occurred on 32 (19%) of the 168 observation sessions with a mean of 93% and a range of 81-100%.

Results

Figure 1 displays the frequency of interactions from the direct observation data with the multiple baseline design for the four participants. During baseline, Andrew had a mean of 3.9 interactions with the job coach per session (range 2-7) and no interactions with non-disabled co-workers. During the intervention he had a mean of 11.3 (range 5-19) interactions per session with non-disabled co-workers and no interactions with the job coach. His normative mean was 3.7 interactions per session.

For Karl, during baseline, he had a mean of 4.1 interactions with the job coach per session (range 0-13) and no interactions with non-disabled co-workers. During the intervention he had a mean of 12.6 (range 6-19) interactions per session with non-disabled co-workers and no interactions with the job coach. His normative mean was 7.2 interactions per session.

During baseline Sarah had a mean of 4.3 interactions with the job coach per session (range 0-10) and no interactions with non-disabled co-workers. During the intervention she had a mean of 10.9 (range 3-18) interactions per session with non-disabled co-workers and no interactions with the job coach. Her normative mean was 7.2 interactions per session.

For Lenny, during baseline, he had a mean of 3.9 interactions with the job coach per session (range 0-10) and no interactions with non-disabled co-workers. During the intervention he had a mean of 15.5 (range 7-27) interactions per session with non-disabled co-workers and no interactions with the job coach. His normative mean was 7.0 interactions per session.

Table 1 displays the mean (and range) percentages of initiations, receiving initiations, continuations, and terminations that were appropriate and occurred at the right time for each of the participants. These data indicate that each participant had a mean of 75% or better on appropriate interactions (initiations, receiving initiations, continuations, and terminations) and occurrence at the right time during both phases of the study.

The frequency of topics during intervention and the normative comparison data are displayed in Figure 2. General/Social and Work were the most frequent topics for each of the participants and the co-workers. The participants often engaged in more interactions with these topics than the non-disabled co-workers.

Vocational Integration Index

The individual scores for the participants is presented in Figure 3. The company, work area, and benefit indicators scores demonstrated a clear pattern of an increase from baseline to intervention for each participant. The employee indicator, which was the most relevant for this study, showed a mean increase from baseline (14.5) to intervention (19.5).

Social Validation

All of the student's frequency of interactions with non-disabled co-workers, social skills, and integration with non-disabled co-workers were rated higher following the intervention than during baseline (questions 1-4). The job coach rated the intervention procedures as being very effective (question 5) for each of the students.

Discussion

This study adds empirical support for the effectiveness of co-worker instruction in increasing integration in competitive employment settings for youth in transition. Integration in the workplace has often been difficult to achieve and natural supports appear to be an effective strategy for increasing integration. Co-worker instruction on new job tasks is only one form of natural supports that co-workers can provide. However, it is important to point out that natural support instruction is not the only strategy that may be effective in increasing integration in the workplace and practitioners should not overlook approaches such as social skills instruction, Circles of Friends, and modifying the work environment. Other natural supports such as orientation to the workplace, time management, advocacy, and job modifications and adaptations may also be effective strategies in increasing integration (DiLeo & Hagner, 1996; Storey & Certo, 1996).

This study also adds empirical understanding to the concern that the presence of job coaches may impede social interactions between the worker with a disability and non-disabled co-workers (Nisbet & Hagner, 1988). It has been suggested that the job coach might best provide support in a consultant role rather in providing direct service (Butterworth, Hagner, Kiernan, & Schalock, in press). Butterworth, Whitney-Thomas, and Shaw, (in press) have advised that facilitating workplace supports is a complicated process and that all support providers need to consider the implicit expectations for job related performance and social interactions that signify the workplace culture.

Because integration is such a complex phenomenon, it is important that multiple measures of integration be used (Chadsey-Rusch, 1992; Storey, 1993). Previous research has generally only considered one dependent variable (i.e., frequency of interactions) in assessing integration. This lack of multiple measures is inadequate due to the complexity and multidimensional aspects concerning integration. Future research should continue to use both micro and macro analytic assessments but the most important dependent variables will be lifestyle outcome measures (Horner, 1996; Newton, Horner, Ard, LeBaron, & Sappington, 1994).

A limitation of this study was that the intervention occurred at only one job site. It is likely that different work environments will vary in the effectiveness of co-worker instruction. Variables such as co-worker willingness to provide instruction, co-worker turnover, management training ideologies, and complexity of job tasks are apt to influence whether or not co-worker instruction is a viable option in a specific work situation for increasing social integration.

Without empirical validation of effective integration strategies it is likely that many persons in competitive employment will continue to be physically integrated but socially segregated in the work place and to suffer the ill-effects of not interacting with others and not having adequate friendships or social networks. The results of this study indicate that natural supports is a promising method of increasing social integration and further research on the effectiveness of different natural support strategies will be valuable.

References

Blalock, G., & Patton, J. R. (1996). Transition and students with learning disabilities: Creating sound futures. Journal of Learning Disabilities, 29, 7-16.

Butterworth, J., Hagner, D., Kiernan, W. E., & Schalock, R. L. (in press). Natural supports in the workplace and community: Defining an agenda for research and practice. Journal of the Association for Persons with Severe Handicaps.

Butterworth, J., Whitney-Thomas, J., & Shaw, D. (in press). The changing role of community based instruction: Strategies for facilitating workplace supports. Journal of Vocational Rehabilitation.

Chadsey-Rusch, J. (1992). Toward defining and measuring social skills in employment settings. American Journal on Mental Retardation, 96, 405-418.

DiLeo, D., & Hagner, D. (1996). In D. DiLeo & D. Langton (Eds.), Facing the future: Best practices in supported employment (pp. 54-56). St. Augustine, FL: Training Resources Network.

Horner, R. H. (1996, May). Discussion on current issues in supported employment. In K. Storey (Chair), Current issues in supported employment. The Association for Behavior Analysis 22nd Annual Conference. San Francisco, CA.

Hughes, C., Rusch, F. R., & Curl, R. M. (1990). Extending individual competence, developing natural support, and promoting social acceptance. In F. R. Rusch (Ed.), Supported employment: Models, methods, and issues (pp. 181-197). Sycamore, IL: Sycamore Publishing Company.

Likins, M., Salzberg, C. L., Stowitschek, J. J., Lignugaris/Kraft, B., & Curl, R. (1989). Co-worker implemented job training: The use of coincidental training and quality-control checking procedures on the food preparation skills of employees with mental retardation. *Journal of Applied Behavior Analysis, 22,* 381-393.

Newton, J. S., Horner, R. H., Ard, W. R., LeBaron, N., & Sappington, G. (1994). A conceptual model for improving the social life of individuals with mental retardation. *Mental Retardation, 32,* 393-402.

Nisbet, J. (1992). *Natural supports in school, at work, and in the community for people with severe disabilities.* Baltimore, MD: Paul Brookes.

Nisbet, J., & Hagner, D. (1988). Natural supports in the workplace: A reexamination of supported employment. *Journal of the Association for Persons with Severe Handicaps, 13,* 260-267.

Parent, W., Kregel, J., Wehman, P., & Metzler, H. (1991). Measuring the social integration of supported employment workers. *Journal of Vocational Rehabilitation, 1,* 35-49.

Rusch, F. R., & Minch, K. E. (1988). Identification of co-worker involvement in supported employment: A review and analysis. *Research in Developmental Disabilities, 9,* 247-254.

Sale, P., Metzler, H. M. D., Everson, J. M., & Moon, M. S. (1991). Quality indicators of successful vocational transition programs. *Journal of Vocational Rehabilitation, 1,* 47-63.

Storey, K. (1993). A proposal for assessing integration. Education and Training in Mental Retardation, 28, 279-287.

Storey, K., & Certo, N. J. (1996). Natural supports for increasing integration in the workplace for people with disabilities: A review of the literature and guidelines for implementation. Rehabilitation Counseling Bulletin, 40, 62-76.

Storey, K., & Horner, R. H. (1991). Social interactions in three supported employment options: A comparative analysis. Journal of Applied Behavior Analysis, 24, 349-360.

Storey, K., & Lengyel, L. (1992). Strategies for increasing interactions in supported employment settings: A review. Journal of Vocational Rehabilitation, 2, 46-57.

Storey, K., Lengyel, L., & Pruszynski, B. (in press). Assessing the effectiveness and measuring the complexity of two conversational instructional procedures in supported employment contexts. Journal of Vocational Rehabilitation.

Wilkinson, G. S. (1993). Wide range achievement test. Wilmington, DE: Wide Range, Inc.

Table 1

Interaction Context Measures Mean (Range) Scores

	Percent Appropriate	Percent Right Time	Job Coach	NDCW[1]	DCW[2]	Other
ANDREW						
Initiations						
B[3]	100	100	0.6 (0-2)	0	0	0
I[4]	100	100	0	1.7 (0-4)	0	0
Receiving Initiations						
B	75	100	2.3 (1-4)	0	0.1 (0-1)	0
I	98	100	0.1 (0-1)	3.3 (1-6)	0	0
Continuations						
B	100	100	1.3 (0-3)	0	0.1 (0-1)	0
I	100	100	0.1 (0-1)	4.6 (2-8)	0	0
Terminations						
B	100	100	0.1 (0-1)	0	0	0
I	100	100	0	1.7 (0-4)	0	0

	Percent Appropriate	Percent Right Time	Job Coach	NDCW	DCW	Other
KARL						
Initiations						
B	100	100	0.3 (0-2)	0.1 (0-1)	0.1 (0-1)	0
I	100	100	0	0.8 (0-4)	0	0
Receiving Initiations						
B	86	100	1.9 (0-6)	0.2 (0-1)	0.3 (0-2)	0.1 (0-1)
I	100	100	0.1 (0-1)	5.5 (2-10)	0	0.1 (0-1)
Continuations						
B	100	100	1.5 (0-6)	0.2 (0-1)	0.3 (0-3)	0
I	100	100	0.1 (0-1)	5.3 (2-8)	0	0.1 (0-1)
Terminations						
B	100	100	0.3 (0-2)	0.1 (0-1)	0	0
I	100	100	0.1 (0-1)	1.2 (0-3)	0	0.1 (0-1)

LENNY	Appropriate Percent	Right Time Percent	Job Coach	NDCW	DCW	Other
Initiations						
B	100	100	0.1 (0-4)	0.1 (0-1)	0.2 (0-2)	0
I	100	100	0	0.7 (0-3)	0	0
Receiving Initiations						
B	83	100	1.5 (0-4)	0.1 (0-1)	0.3 (0-2)	0
I	100	100	0	6.0 (3-8)	0	0
Continuations						
B	100	100	1.4 (0-4)	0.2 (0-3)	0.4 (0-3)	0
I	100	100	0	5.6 (0-8)	0.6 (0-6)	0
Terminations						
B	100	100	0.1 (0-1)	0	0	0
I	100	100	0	1.2 (0-3)	0	0

SARAH	Percent Appropriate	Percent Right Time	Job Coach	NDCW	DCW	Other
Initiations						
B	100	100	0.9 (0-3)	0	0.6 (0-2)	0
I	100	100	0	1.5 (0-6)	0	0.1 (0-2)
Receiving Initiations						
B	77	100	1.3 (0-3)	0.1 (0-1)	0.3 (0-1)	0
I	100	100	0.3 (0-4)	3.9 (0-6)	0	0.1 (0-1)
Continuations						
B	100	100	1.9 (0-5)	0.1 (0-1)	0.9 (0-3)	0
I	100	100	0.1 (0-1)	4.7 (1-8)	0	0.1 (0-2)
Terminations						
B	100	100	0.1 (0-1)	0.1 (0-1)	0	0
I	100	100	0	0.8 (0-3)	0	0.1 (0-1)

1. NDCW = Non-Disabled Co-Workers

2. DCW = Disabled Co-Workers

3.B = Baseline

4.I = Intervention

Table 2

Job Coach Ratings

1. How often does this person interact with non-disabled co-workers?

Very Rarely	1	2	3	4	5	6	7	8	9	10	Very Often
ANDREW											
Pre				*4*							
Post										*10*	
SARAH											
Pre		*2*									
Post										*10*	
LENNY											
Pre				*5*							
Post										*10*	
KARL											
Pre				*4*							
Post										*10*	

2. How often does this person talk about non-work topics with non-disabled co-workers?

Very Rarely	1	2	3	4	5	6	7	8	9	10	Very Often
ANDREW											
Pre		*2*									
Post							*7*				
SARAH											
Pre	*1*										
Post										*10*	
LENNY											
Pre	*1*										
Post								*8*			
KARL											
Pre			*3*								
Post										*10*	

3. Overall, how would you rate this person's social skills?

Very Poor	1	2	3	4	5	6	7	8	9	10	**Very Good**
ANDREW											
Pre						*6*					
Post							*7*				
SARAH											
Pre		*2*									
Post					*5*						
LENNY											
Pre				*4*							
Post							*7*				
KARL											
Pre			*3*								
Post						*5*					

4. How integrated with non-disabled co-workers do you think this person is on the job site?

Very Segregated	1	2	3	4	5	6	7	8	9	10	**Very Integrated**
ANDREW											
Pre					*5*						
Post										*10*	
SARAH											
Pre	*1*										
Post										*10*	
LENNY											
Pre		*2*									
Post									*9*		
KARL											
Pre				*4*							
Post										*10*	

5. How effective do you think the intervention procedures have been in increasing this person's social integration with non-disabled co-workers?

	Not Effective	1	2	3	4	5	6	7	8	9	10	Very Effective
ANDREW												
Post										9		
SARAH												
Post										9		
LENNY												
Post										9		
KARL												
Post											10	

Figure Caption

Figure 1. The frequency of interactions from the direct observation data with the multiple baseline design for the four participants.

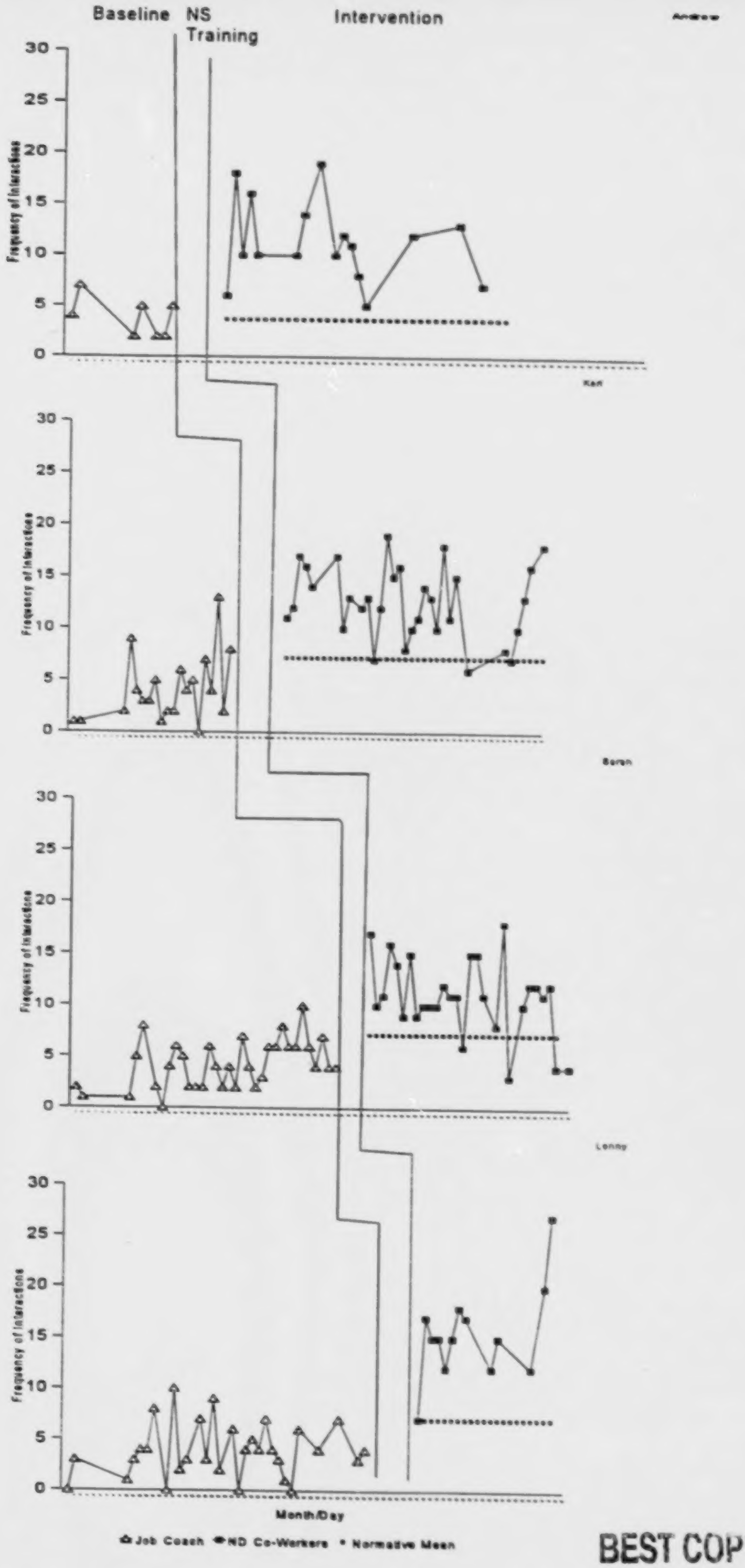

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Figure Caption

Figure 2. The mean frequency of topics during the intervention phase as well as the normative data.

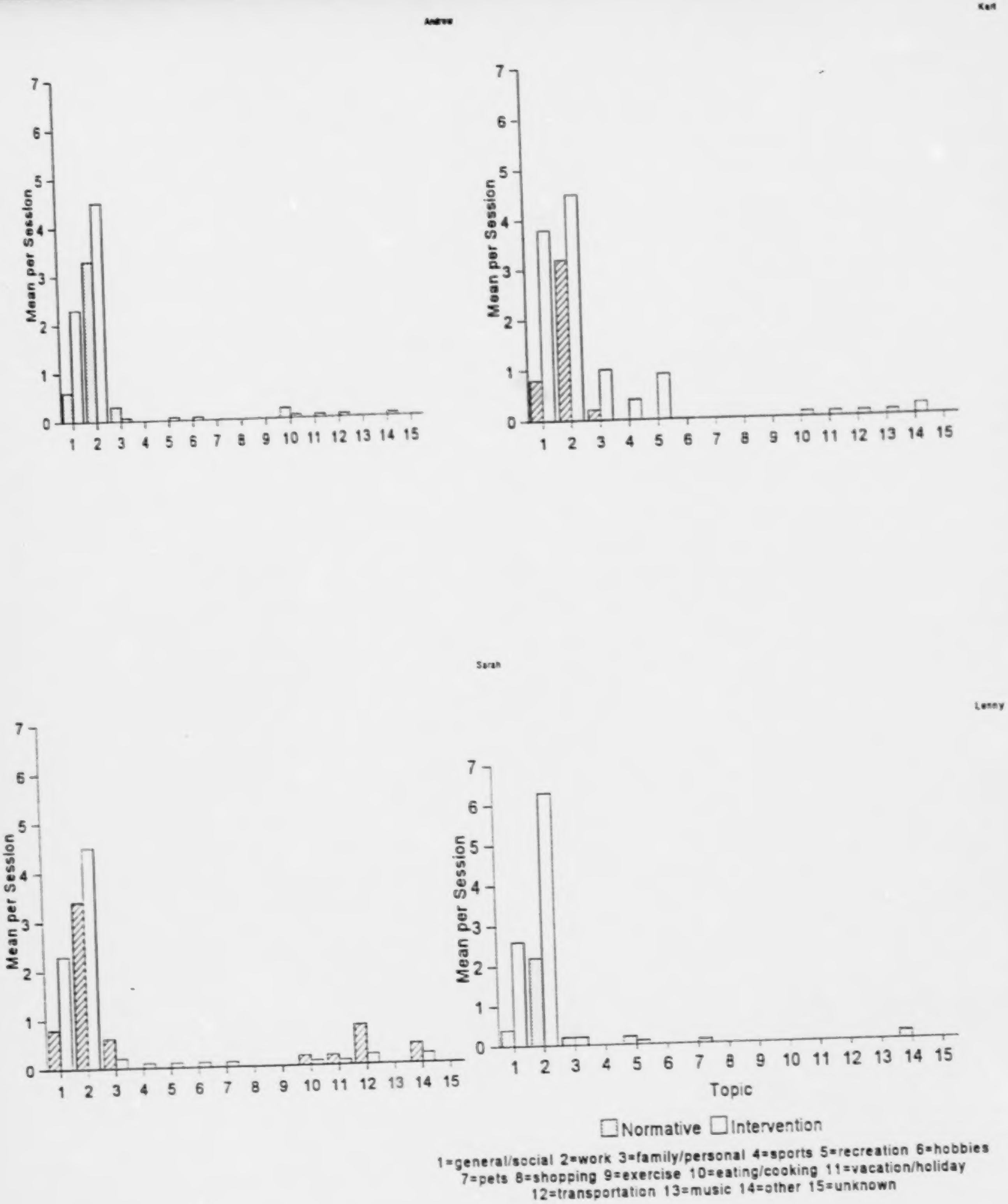

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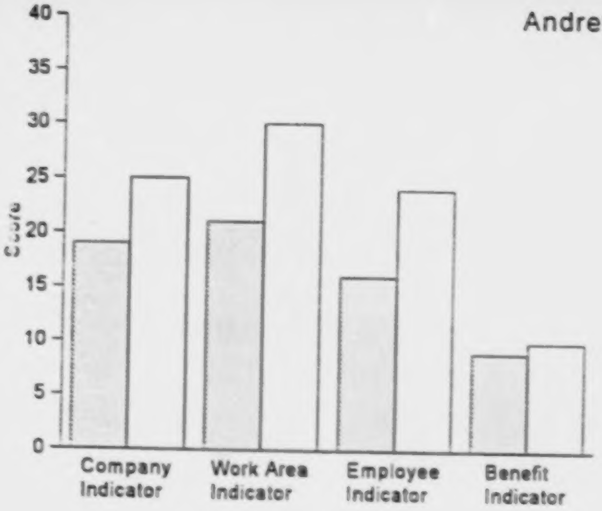
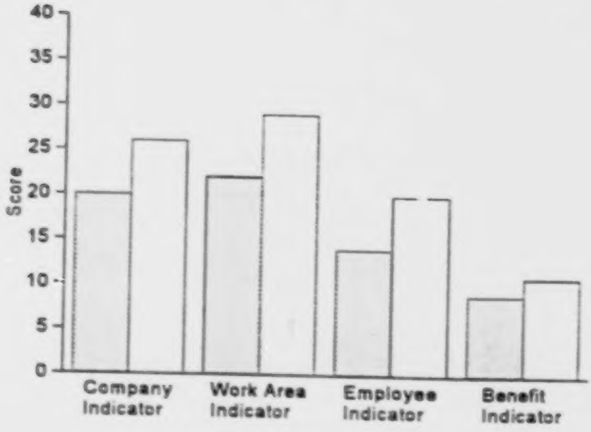
Figure Caption

Figure 3. Vocational Integration Index scores for the four participants during baseline and intervention phases.

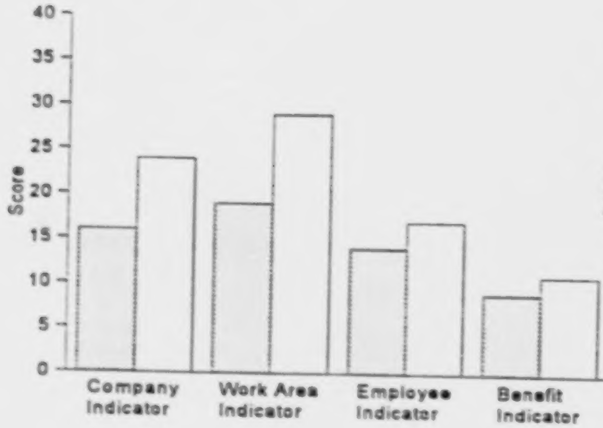
Andrew



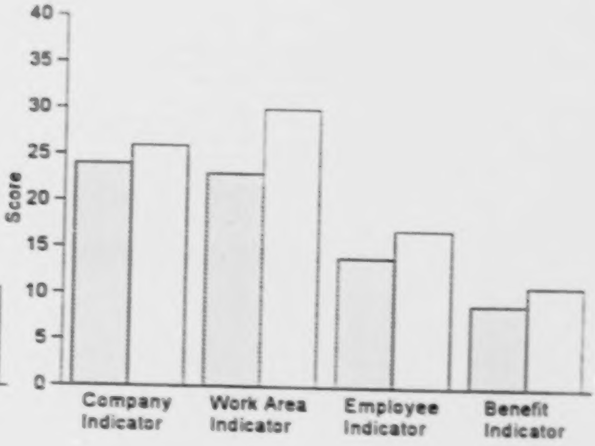
Karl



Sarah



Lenny



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Running Head: NATURAL SUPPORTS

The Effect of Co-Worker Versus Job Coach Instruction on Integration in Supported Employment Settings

Mellanie Lee
California State University, Hayward
Keith Storey
Chapman University
Jacki L. Anderson
California State University, Hayward
Lori Goetz
San Francisco State University
Steve Zivolich
Integrated Resources Institute

Abstract

Thirty employees at Pizza Hut were observed to examine the effects of three training strategies on social integration. These training strategies represented: (a) the traditional job coach model, (b) a mentoring model, and (c) the use of management and co-workers to train new employees without disabilities. This research found that employees with severe disabilities trained using the mentor model had more interactions with non-disabled co-workers than those trained using the job coach model. The data also indicate that the non-disabled comparison group had more interactions than either the job coach or mentoring groups, and that the types of interactions did not vary among the three groups.

The Effect of Co-Worker Versus Job Coach Instruction on Integration in Supported Employment Settings

Recently, questions have emerged around the role that human service agencies play in the supported employment model in which these agencies are responsible for providing a job coach who trains and supervises the supported employee at the job site (Nisbet & Hagner, 1988; Rhodes Sandow, Mank, Buckley, & Albin, 1991). One emerging issue is how initial training efforts affect integration. Traditionally, a job coach provided by a human service agency is utilized to train the worker with severe disabilities and provide extended ongoing support to the worker. This support not only includes training all of the identified job tasks, but also the availability of the job coach at any time to train new tasks and re-train tasks if needed. This support theoretically lasts for the length of employment at the site and uses systematic instructional training strategies to teach job skills (Wehman & Melia, 1985). While this model has been "traditional" since its inception and appears to be an effective means of training specific job skills, there is current questioning whether this is the best way to facilitate integration for workers with severe disabilities (Butterworth, Hagner, Kiernan, & Schalock, in press; Hagner, Butterworth, & Keith, 1995; Storey & Certo, 1996).

The use of natural supports has been promoted as a means of increasing integration in the work place. This not only means that the employee with disabilities learns the necessary job skills to function within the environment but also for the worker with disabilities to be fully socially included in all aspects of the work environment. Natural supports refers to the utilization of co-workers from the onset of placement to train and support workers with disabilities throughout their employment period (Nisbet & Hagner, 1988). Basically, this approach utilizes supports and strategies that are inherent to the particular work environment such as co-workers, supervisors and managers (DiLeo & Hagner, 1996). Support and training strategies are determined by analyzing both training that occurs at the worksite for non-disabled employees as well as the individual support strategies that are unique to the worker with disabilities. Support may involve continued skill training, social skills training, crisis intervention, advocacy, community skill training, validating instructional strategies, collecting subjective evaluations, collecting social comparison information, and job modifications and adaptations (Rogan, Hanger, & Murphy, 1993). It has been suggested that the process of initiating support being as "least intrusive" as possible (Butterworth, Whitney-Thomas, & Shaw, in press). However, little research to date has documented the actual social effect that training strategies, whether delivered by a job coach or via a co-worker, may produce (Storey & Certo, 1996; Test & Wood, in press). Though issues such as the importance of integration of workers with disabilities are values-driven, how best to achieve

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integration is a question in which it is important to have an empirical basis on which to make decisions and guide policy (Horner, 1991). The ability of natural support strategies to accomplish integration is currently not clear.

The purpose of this study was to investigate social interaction patterns of workers with severe disabilities with respect to the type of training that they receive while on the job. The study examined the impact of the following training strategies on social interactions: 1) use of an outside "Job Coach" who directly provided training in specific job performance tasks to the worker with the disability and 2) the use of a "Mentor", a selected co-worker (supported by an outside Agency) who provided on the job training and support. In addition, normative data on non-disabled employees were examined and used for a comparison with both of the training models.

Method

Participants and Settings

The study took place in Pizza Hut Restaurant and Delivery Units in the Northern California area. The Pizza Hut restaurants in this study were selected because they were part of a federal project that looked at training strategies (Zivolich, 1990).

Thirty Pizza Hut production line employees (17 women and 13 men) participated in the study. Their ages ranged from 18 to 40 years old. Each participant started working at 20 hours or more per week (for all 3 groups). During the study the participants worked between 12 and 30 hours per week (schedules varied weekly for each person). Each participant made at least minimum wage and had more than one job task. The workers were divided into the following three groups: Group 1 (N=10) consisted of employees with severe disabilities who were trained on the job by a job coach (hired by a human service agency). Group 2 (N=10) was comprised of workers with severe disabilities who were trained by a non-disabled Mentor. The Mentors were identified as the Managers from Pizza Hut. Group 3 (N=10) was comprised of non-disabled workers who were trained by co-workers and managers. Each of the 30 participants were employees of Pizza Hut and had worked at least 1 year at Pizza Hut for 20 hours a week or more. All participants received training as new employees and observations were conducted one year later.

For Group 1 and Group 2, the participants were all clients of the Department of Rehabilitation of California. All were eligible to receive supported employment services because they fit into the category of "severely disabled" according to the Department of Rehabilitation guidelines. Participants were assigned to either the mentor or job coach groups based on job match and selection by the manager and the supported employment agency. The researchers had no involvement in the assignment to groups and the participants had already been assigned and working at least one year before the start of the research study. The participants selected for the study were selected by Pizza Hut based upon geographic location.

All of the target workers who participated in the study were production line, entry level employees whose job responsibilities were comprised of a variety of tasks including: dish washing, box folding, dough making, pizza and salad preparation work, cashiering, phone answering and bussing tables. None of the participants were receiving training from job coaches while the study was being conducted.

Dependent Variables

The dependent variables were the number and type of reciprocal interactions that occurred between workers with disabilities and their non-disabled co-workers using an adapted version of the Educational Assessment of Social Interaction (EASI) Scale (Haring, Anderson, & Goetz, 1983). Reciprocal interactions represent a full turn (initiations with a response) between one worker and another worker (e.g. job coach worker to co-worker or co-worker to job coach worker). Using this definition, the number and type of social interactions that occurred between non-disabled co-workers and workers with disabilities was examined. No customer or job coach interactions were included in data collection. Job coaches were never present during any of the data collection periods.

Interaction data were scored using an interval data collection system. Categories were mutually exclusive so that only one category could be scored after it was identified who initiated the interaction. After scoring initiation and acknowledgment within an interval, the EASI (Haring et al., 1983) scored eight additional categories relevant to educational and classroom contexts (e.g., social or task related, on or off task, etc.). These contexts were changed to reflect the context of the job settings. Interactions were thus operationalized into the following categories:

1) Who initiated (i.e., initiation of interaction either verbally or non-verbally).
2) Acknowledged (i.e., a response by a person initiation was directed to).
3) Job Related (i.e. a direction, question, gesture or relating to a work task).
4) Job Related Reinforcement (i.e. reinforcement around job tasks).
5) Job Related Physical (i.e. any physical contact relating to work).
6) Job Related Social (i.e., joking or gossiping that relates to work/workers).
7) Social Related (i.e., comments about things that do not have anything to do with work).
8) Social Related Reinforcement (i.e. reinforcement that is social in nature).
9) Social Related Physical (i.e. any physical contact that is social in nature).
10) Social Related Social (i.e., joking or gossiping that does not relate to work/workers).

Data Collection Procedures

Each of the thirty workers was observed on two separate sessions within approximately a two week span. Data collection occurred for 20 minutes per session for 40 minutes total per worker. No change was made in any of the participants activities for data collection purposes. The data collectors informed all employees that they were there to learn how a Pizza Hut is operated and wanted to see things as they "usually happened" and to try and ignore the data collectors. Researchers stood within hearing distance, approximately 5-8 feet away from participants.

An adapted version of the Education Assessment of Social Interaction 2 (Haring et al., 1983), as described above, was utilized to determine the nature of reciprocal interactions that occurred. Data were collected on: 1) who initiated the interaction, 2) if the interaction was acknowledged, and 3) what type of interaction occurred. Observational data were collected during "slow times' which were identified by management as times during the work shift when there was no "rush" and there was more of an opportunity for social interactions. These included times such as mornings before lunch and later afternoons before dinner. No training occurred during the observation sessions. During the observation sessions the employees were doing assigned job tasks as indicated in the method section. No breaks were being taken during data collection times. A tape-recorded, timed tape was used, cueing the data collector to observe for 15 seconds and record observations for 5 seconds. Each behavior was scored once if it occurred within that interval. Interactions that occurred between employees and customers were not counted. Data

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collection and observation were conducted as unobtrusively as possible.

Independent Variable

The independent variables in the study were the three types of training strategies utilized to train target employees at Pizza Hut. The first group of employees targeted were those employees with severe disabilities trained under the traditional supported employment job coach model. In this model all employees were directly trained on identified job tasks by a job coach from a human service agency. The job coach stayed on site full-time until the employee had mastered the outlined tasks (a minimum of 180 direct contact hours with an average of 360 hours) at which time the job coach began fading his/her presence. The Job Coach continued to provide on-going follow-up services which included: training new tasks, re-training tasks, and assisting with other issues that occurred at the site.

The second group of targeted employees were workers with severe disabilities trained on job tasks utilizing the mentor model. Mentors were managers of each individual Pizza Hut. All Pizza Hut managers in the state were told about he mentor project and mentors volunteered to participate. Mentors were then picked by Pizza Hut supervisors based upon who the supervisors thought would succeed. Mentors were never co-workers, though co-workers could have been involved in some aspects of training at the manager's discretion. In the mentor model, the manager of the restaurant and the job coach were provided with a one day generic training by Integration Resources Institute grant staff (a non-profit corporation) conducting natural support training and research for the Social Security Administration that addressed the historical perspectives of supported employment, systematic instructional strategies (task analysis, work site adaptations, etc. as well as overview of different types of disabilities) for individuals with developmental disabilities and screening, hiring employees with disabilities (Zivolich, 1990; Zivolich, Shueman, & Weiner, in press). The mentor was directly responsible for training the worker with a disability and training other co-workers on how best to train the worker with a disability. The mentors received $150 for attending training concerning workers with disabilities. They also received an additional $150 stipend if the worker was mentored and retained employment for 60 days. Additionally, the job coaches were responsible for providing training and support to each of the managers with respect to the new employee with a disability, rather than the job coaches directly training the employees with disabilities. Consequently, the role of the job coach was significantly different than the role played in Group 1, where the job coach was responsible for direct training of job tasks. In Group 2, the job coach was responsible for teaching the mentor how best to train the worker with a disability. This occurred by modeling and informal discussion. The supports provided by the job coach to the mentor were up to 60 hours.

The third group of employees was a non-disabled comparison group. This group of workers was trained by management and co-workers on the job. Pizza Hut's "regular" non-disabled employee training for entry level positions consists of management and shift managers training the new employee "on the job." Pizza Hut employees are required to read specific manuals and view a video, then take a skills test on paper or through demonstration. New job tasks and the re-training of skills are the responsibility of management and more typically, co-workers that have had previous experience. Job task training is usually conducted with verbal directions in combination with observation/modeling, and "hands-on experience."

Interobserver Agreement

Interobserver reliability was collected on 20 of the 60 (30%) observation sessions within each of the three groups. An independent observer was in the environment at the same time as the primary data collector and recorded data using the same data collection system. Reliability was calculated by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100. This was for all dependent variables observed. Interobserver agreement ranged from 97.8% to 100% with a mean of 99%.

Results

A non-parametric Mann Whitney U Test was applied to analyze comparisons among the three groups (Marascuilo & Serlin, 1988). These statistical procedures were used because of the small "n" size (10 people in each group) as with groups of this size, there is a violation of the assumption of conventional statistical tests that there is normality of the sampling distribution (Cohen, 1988).

The results indicate that there was a statistically significant difference ($p < .01$) in the number of _initiated_ interactions between employees with disabilities trained under the job coach model and employees with disabilities trained by mentors. These data also indicate that employees who had a mentor had significantly more _reciprocal_ interactions than employees who had a job coach ($p < .01$). In addition, the non-disabled employees had significantly more reciprocal interactions ($p < .01$) than either the job coached employees or the mentored employees. However, there were no statistically significant differences in the _types_ of reciprocal interactions that occurred among the three groups.

Number of Interactions

There were 90 intervals per session (180 intervals total per person) for data collection. Using the Mann-Whitney U Test, the results indicate that there were significantly more reciprocal interactions in the mentor group than in the job coach group ($p<.01$). This was also true in comparisons between the non-disabled worker group and the mentor group ($p<.01$) and between the non-disabled worker group and the job coach group ($p<.01$).

Figure 1 displays the collapsed scores across individuals for observation intervals with reciprocal interactions for the three target groups. When examining the reciprocal interactions in Group 1 (the job coach group, disabled employees) the overall mean was 13.5 (individual mean range 2-25). The mentor group had an overall mean of 43 (individual mean range 4-82). The Non-disabled comparison group had an overall mean of 74.5 (individual mean range 32-117).

No statistically significant differences were found in the percent of intervals of interactions acknowledged. The mean percent of initiations acknowledged for in the job coach group was 73.5%, the mentor group showed 98.3% and similarly, the non-disabled comparison group showed 98.6%. The percent of interactions acknowledged in the mentor and the non-disabled comparison groups were virtually identical, whereas with the job coach group 25% fewer initiations were acknowledged. These data are displayed in Figure 2.

Types of Interactions

Figure 3 presents the analysis of the specific types of interactions. This figure displays the occurrence of reciprocal interactions for each of the three groups for job related, social related and job reinforcement categories. Because there were no statistically significant changes in all of the other dependent measure categories, only the data for these three categories are provided. For job related reciprocal interactions, the job coach group had a mean of 78.3, the mentor group had a mean of 79.2 and the non-disabled comparison group had a mean of 75. For social related interactions, the job coach group had a mean of

21.6, the mentor group had a mean of 20.7, and the non-disabled comparison group had a mean of 24.9. For job reinforcement interactions, the job coach group had a mean of 6.6, the mentor group had a mean of 6.9, and the non-disabled comparison group had a mean of 0.9. There were no statistically significant differences between these categories. However, in the category of Job Reinforcement although there were no statistical differences between the groups, the numbers reflected 7 times as many in both groups of people with disabilities (job coach 6.6, mentor 6.9) versus non-disabled workers who received job reinforcement 0.94.

Discussion

This study analyzed the effects of mentoring versus job coach training on the integration of workers with severe disabilities in supported employment settings. The results of this study demonstrated that workers who received training with the mentoring model had more reciprocal interactions than non-disabled co-workers who received training in the job coach model. These data also indicate that although the non-disabled comparison group had more interactions than either the job coach or mentoring group, the type of interactions did not vary among any of the groups.

White not statistically significant, in the Job Reinforcement category of interaction types, findings indicated seven times as many "reinforcements" given to workers in both the job coach and mentor groups versus the non-disabled comparison group. These preliminary data, coupled with reinforcement and training strategies used by human service providers (Mank, Oorthuys, Rhodes, Sandow, & Weyer, 1992), suggest that a possible outcome of employers and human service providers working together may be a transfer of skills. Numerous articles published in business journals also illustrate that reinforcement strategies, albeit underutilized, are primary to job performance, satisfaction and retention (Bernstein, 1990; Mank et al., 1992; Scarpello, Ledvinka, & Bergmann, 1995).

The data illustrated that there were more interactions that took place in the mentor group versus the job coach group. Although there were more similarities between the mentor group and the non-disabled comparison group, the mentor group did not equal the level of interactions of the non-disabled comparison group.

It is interesting to speculate about why the choice of training model would affect interactions a year later with both new and old co-workers? Perhaps because the mentors remained in the work environment, they were able to model social interactions with the supported employees for new employees without disabilities. It seems more natural that the mentor group would have more interactions because those people are always in the environment so they will continue to interact socially because they have already done so, in other words, it is nothing new. With the job coach group, social interactions with the supported employee might be impeded by the presence of the job coach and no formal social interactions occurred at the beginning of the placement as with the mentor group. With the job coach model, co-workers might believe that they need special training in order to interact with the supported employee.

There may be limitations of the study due to time periods sampled for observations. The observational sessions were identified by the co-workers as time when there was "down time/little work time", because it was believed that that was the time when interactions were most likely to occur. No attempts were made to identify other times or to randomize observation times. The actual observational time of each session (20 minutes) and the number of sessions (2) represent other methodological limitations of the study. More successive observational time across a variety of work periods and break times, throughout the employees work week may better demonstrate typical interactions on a day to day basis.

The fact that the work environment, Pizza Hut, had a high turnover rate is another variable that may have limited the findings of this study. While the participants all had been employed a year or longer, many of the other employees, including management, were relatively new to the job site, with the exception mentioned earlier of workers in the non-disabled comparison group. Examination of a work environment where the entire workforce is more stable for a period longer than three months may perhaps produce different results.

Another limitation was that the nature of the observations may have been intrusive. Since this study utilized direct observation, mere physical presence of the researcher might have influenced "natural" interactions. However, since the same observational strategies were used across the three groups the effects should have been equal.

The preliminary data from this study suggest that natural support strategies may have a positive effect on social interactions in supported employment settings. Further research on the quality of social interactions and relationships in and out of workplace is essential. The field needs to continue to look at support strategies that have the greatest impact on integration and tailor support to the unique needs of each individual and work site as well as for general support strategies such as teaching new tasks, job adaptations, etc. It is interesting to speculate on the effect of the large number of "reinforcements" received by supported employees. The training methodologies relied upon "good" instructional strategies such as the use of verbal praise (Storey, 1995) and this occurred for both the job coaches and the mentors. It appeared that this use of verbal praise by the job coach was modelled for the co-workers who learned to use these behaviors with the supported employees. The use of reinforcement was also an important component of the mentor training and they also appeared to model the behavior for the co-workers.

Examination of available research from "typical" work environments is also needed, including examination of in-depth training strategies that have been successful for non-disabled employees. Generalizing that information to support workers with disabilities would be a logical next step. This recommendation asks for a paradigm shift in the way human service providers are currently providing employment services to individuals with disabilities. It requires looking at a person and the employment setting from a holistic perspective and then individually creating supports for that person out of what is present (Summary National Forum on Natural Supports, 1993).

In conclusion, the question continues to emerge whether natural supports is a better way to facilitate social integration than the traditional job coach model. The results of this study indicate that a natural supports training model resulted in more interactions than the traditional job coach model. However, it is not clear that it is an either or proposition (Storey & Certo, 1996; Test & Wood, in press). We need to be cautious not to get caught in the web of a rhetorical definition by placing natural supports on the next step of the continuum and making it a "cookbook" placement slot. Previous research has found that many workers with severe disabilities are not well integrated (Chadsey-Rusch, Gonzalez, Tines, & Johnson, 1989; Storey & Horner, 1991). It is critical that we continue to examine new strategies and carefully evaluate the effectiveness of all strategies designed to increase integration in supported employment settings.

References

Bernstein, C. (1990) Empower employees, motivate customers. Restaurant Management, 24, 27.

Butterworth, J., Hagner, D., Kiernan, W. E., & Schalock, R. L. (in press). Natural supports in the workplace and community: Defining an agenda for research and practice. Journal of the Association for Persons with Severe Handicaps.

Butterworth, J., Whitney-Thomas, J., & Shaw, D. (in press). The changing role of community based instruction: Strategies for facilitating workplace supports. Journal of Vocational Rehabilitation.

Chadsey-Rusch, J., Gonzalez, P., Tines, J., & Johnson, J. (1989). Social ecology of the workplace: Contextual variables affecting social interactions of employees with and without mental retardation. American Journal on Mental Retardation, 94, 141-151.

Cohen, J. (1988). Statistical power analysis for the behavioral sciences (2nd ed.). Hillsdale, NJ: Erlbaum.

DiLeo, D., & Hagner, D. (1996). Facilitating nine kinds of support co-workers can provide. In D. DiLeo & D. Langton (Eds.), Facing the future: Best practices in supported employment (pp. 54-56). St. Augustine, FL: Training Resources Network.

Hagner, D., Butterworth, J., & Keith, G., (1995). Strategies and barriers in facilitating natural supports for employment of adults with severe disabilities. Journal of the Association of Persons with Severe Handicaps, 20, 110-120.

Haring, T., Anderson, J., & Goetz, L. (1983). *Educational assessment of social interactions, (EASI): An observational checklist for measuring social interactions between non-disabled and severely disabled students in integrated settings.* San Francisco: San Francisco State University, San Francisco Unified School District. (ERIC Document Reproduction No. ED242 184).

Horner, R. H. (1991). The future of applied behavior analysis for people with severe disabilities: Commentary I. In L. H. Meyer, C. A. Peck, & L. Brown (Eds.), *Critical issues in the lives of people with severe disabilities* (pp. 607-611). Baltimore, MD: Paul H. Brookes.

Mank, D. M. (1994). The underachievement of supported employment. *Journal of Disability Policy Studies, 5,* 1-24.

Mank, D., Oorthuys, J., Rhodes, L., Sandow, D., & Weyer, T. (1992). Accommodating workers with mental disabilities. *Training and Development Journal, 46,* 49-52.

Marascuilo, L. A., & Serlin, R. C. (1988). *Statistical methods for the social and behavioral sciences.* New York: W. H. Freemorrow Company.

National Forum on Natural Supports Summary. (1993). The Employment Network, University of Oregon, Eugene Oregon.

Nisbet, J., & Hagner, D. (1988). Natural support in the workplace: A reconceptualization of supported employment. *Journal of The Association for Persons with Severe Handicaps, 13,* 260-267.

Rhodes, L., Sandow, D., Mank, D., Buckley, J., & Albin, J.

(1991). Expanding the role of employers in supported employment. *Journal of the Association for Persons with Severe Handicaps, 16,* 213-217.

Rogan, P., Hagner, D., & Murphy, S. (1993). Natural supports: Reconceptualizing job coach roles. *Journal of the Association for Persons with Severe Handicaps, 18,* 275-281.

Scarpello, V. G., Ledvinka, J., & Bergmann, T. J. (1995). *Human resource management environments and functions.* Cincinnati, OH: South-Western College Publishing.

Storey, K. (1995). Reinforcement strategies. In W. W. Woolcock & J. W. Domaracki (Eds.), *Instructional strategies in the community: A resource guide for community instruction for persons with disabilities* (pp. 55-73). Austin, TX: Pro-Ed.

Storey, K., & Certo, N. J. (1996). Natural supports for increasing integration in the workplace for people with disabilities: A review of the literature and guidelines for implementation. *Rehabilitation Counseling Bulletin, 40,* 62-76.

Storey, K., Horner, R. (1991). Social interactions in three supported employment options: A Comparative Analysis. *Journal of Applied Behavior Analysis, 24,* 349-360.

Test, D. W., & Wood, W. M. (in press. Natural supports in the workplace: The jury is still out. *Journal of the Association for Persons with Severe Handicaps.*

Wehman, P., & Melia, R. (1985). The job coach: Function in transitional and supported employment. *American Rehabilitation, 11,* 4-7.

Zivolich, S. (1990). Employer mentor training manual. Irvine, CA: Integrated Resources Institute.

Zivolich, S., Shueman, S. A., & Weiner, J. S. (in press). An exploratory cost-benefit analysis of natural support strategies in the employment of people with severe disabilities. Journal of Vocational Rehabilitation.

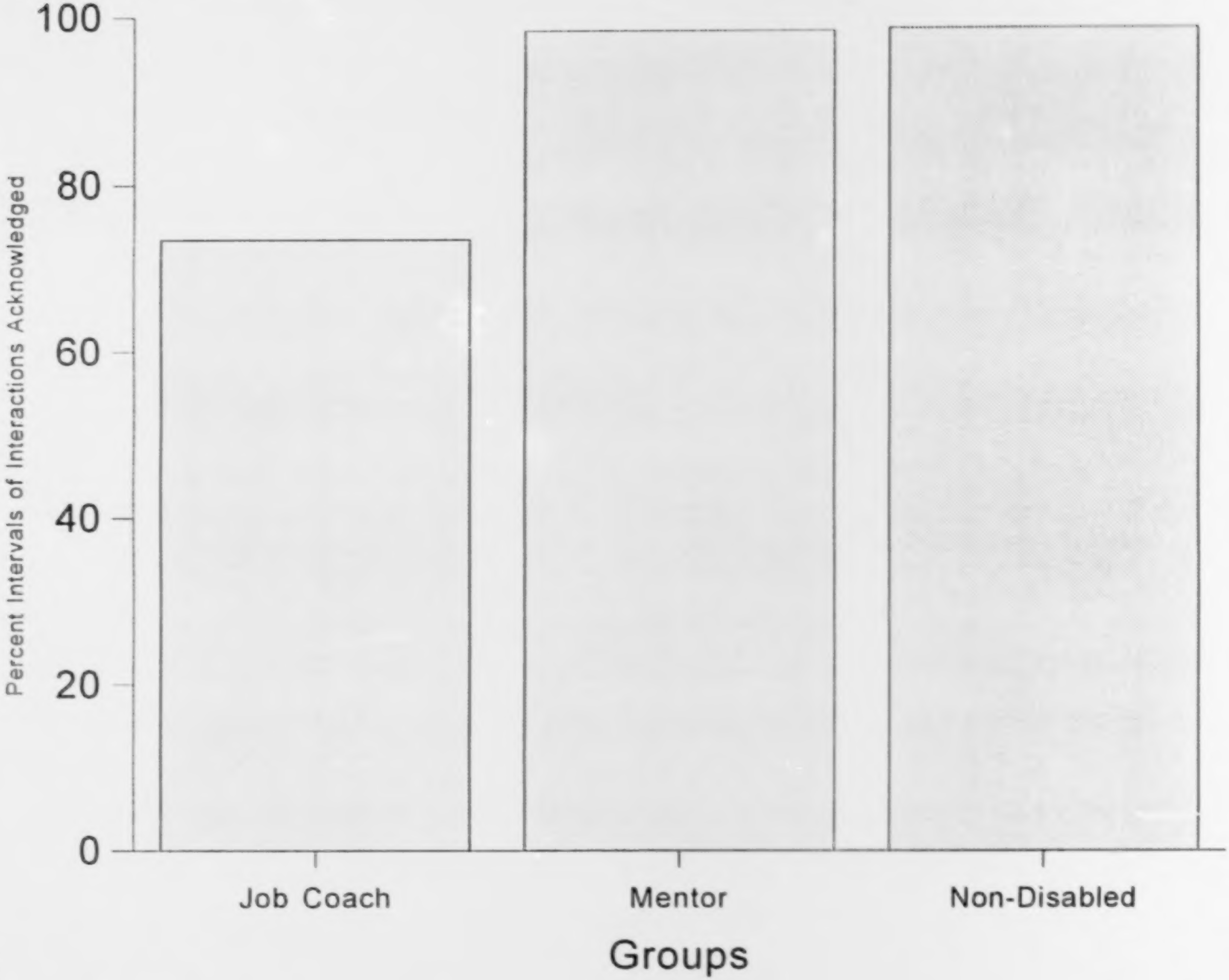

100
80
60
40
20
0
Percent Intervals of Interactions Acknowledged
Job Coach
Mentor
Non-Disabled
Groups

Figure Caption

Figure 1. Percent of intervals of initiations acknowledged (reciprocal interactions) for the Job Coach Group, the Mentor Group, and the Non-Disabled Comparison Group.

Figure Caption

Figure 2. Overall mean plus highest and lowest individual mean of intervals with reciprocal interactions (out of 180 intervals) for the Job Coach Group, the Mentor Group, and the Non-Disabled Comparison Group.

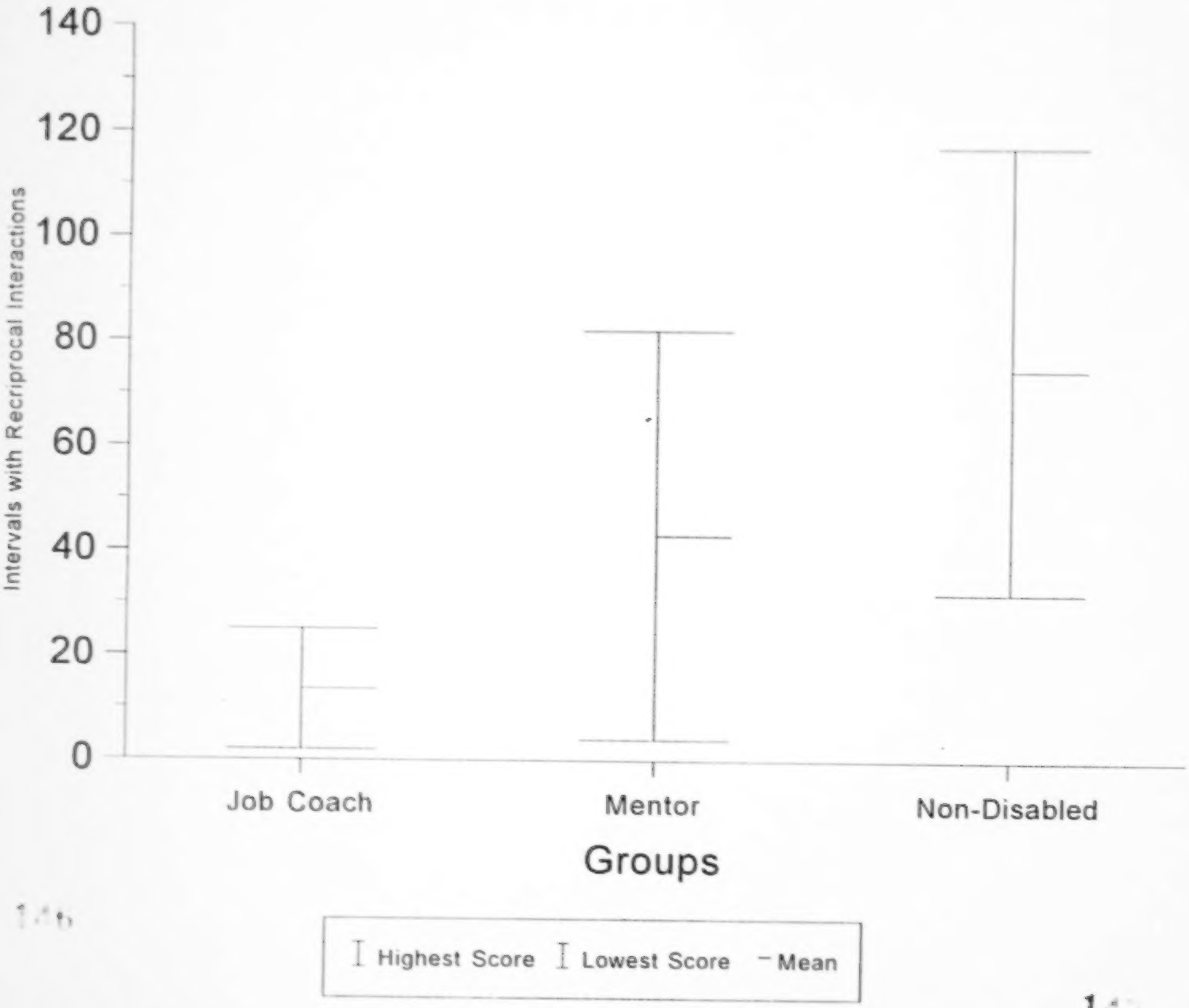
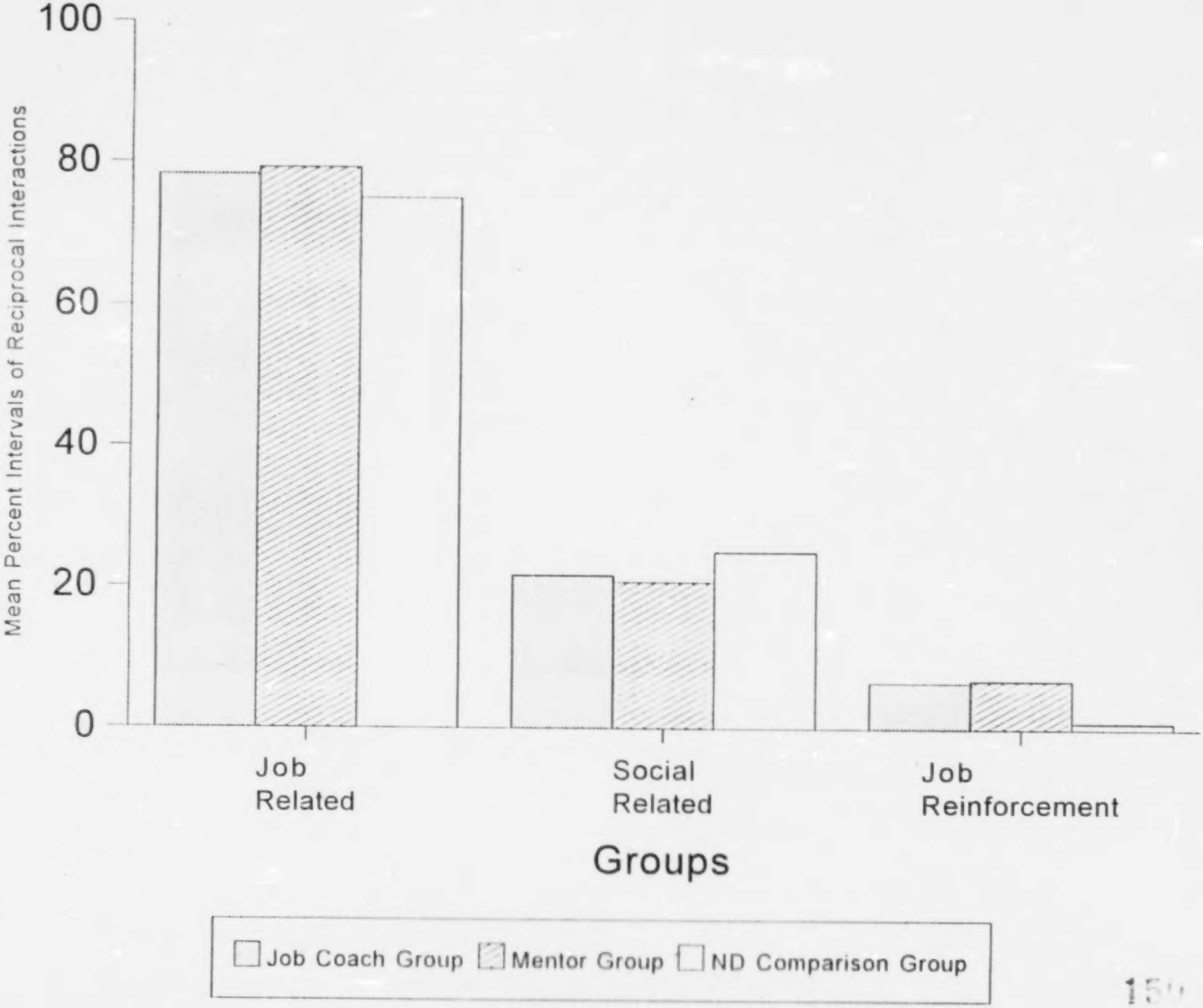

140
120
100
80
60
40
20
0
Intervals with Recriprocal Interactions
Job Coach
Mentor
Non-Disabled
Groups
Highest Score
Lowest Score
Mean

Figure Caption

Figure 3. The occurrence of reciprocal interactions by type (job related, social related and job reinforcement categories) for each of the three groups.


100
80
60
40
20
0
Mean Percent Intervals of Reciprocal Interactions
Job Related
Social Related
Job Reinforcement
Groups
☐ Job Coach Group
▨ Mentor Group
☐ ND Comparison Group

Author Notes

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